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Simple and Chronic Urethritis.

J. HENRY DOWD, M. D.



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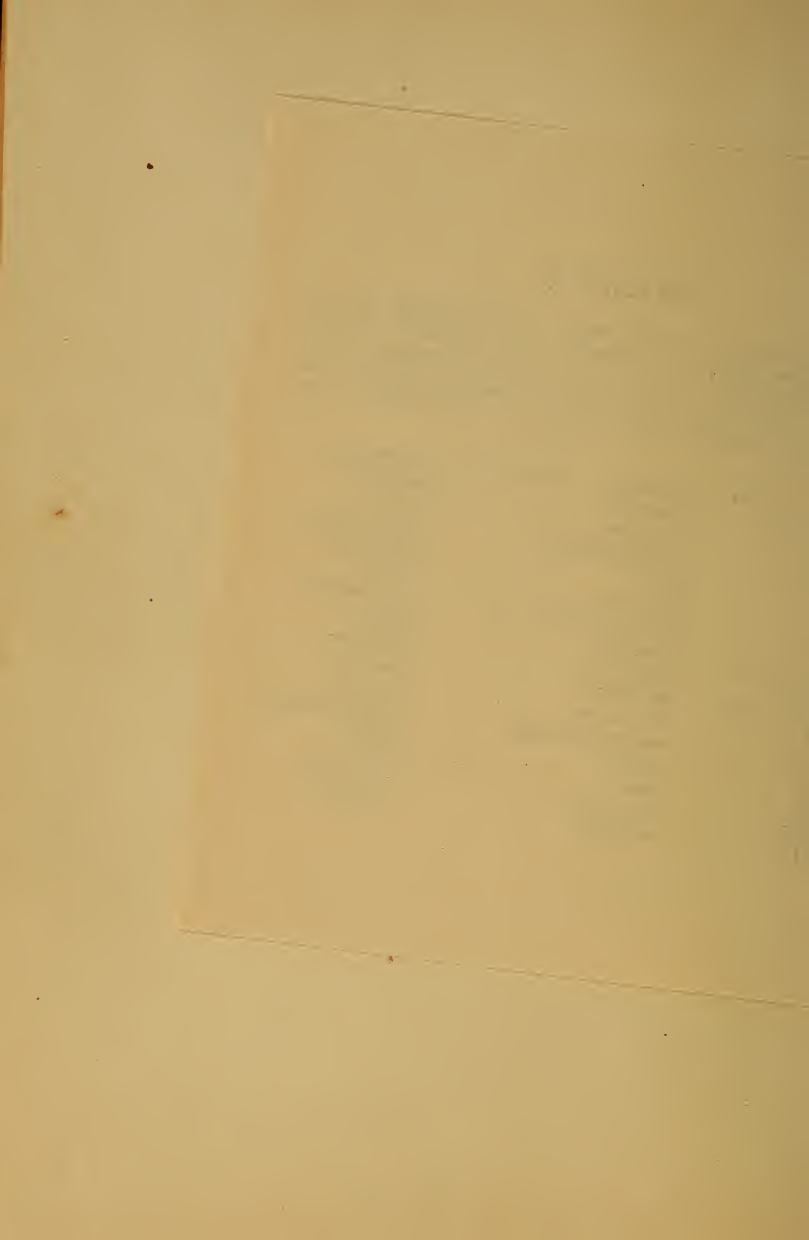


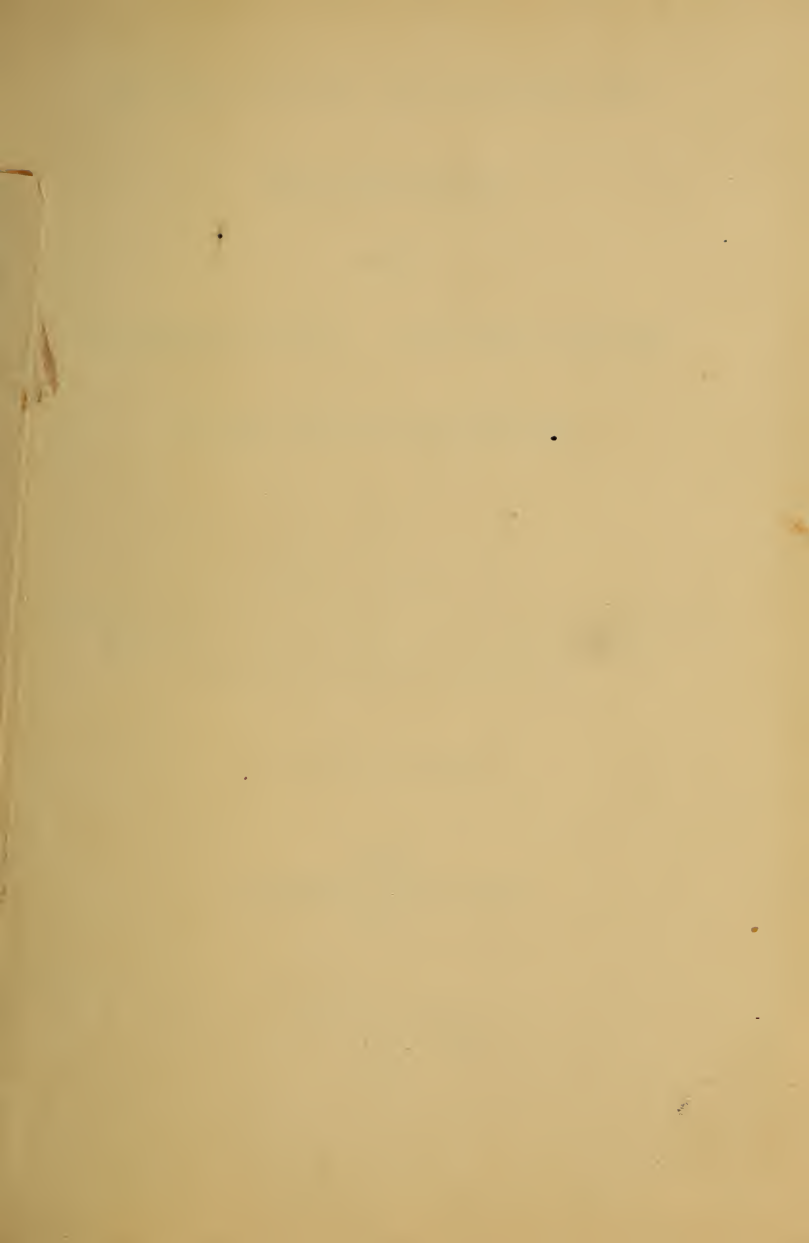


ERRATA.

Unfortunately through hasty proof reading several typographical errors are observed. In several instances this is noticeable regarding the most common words and which have been used many times throughout the work. The following are among the corrections to be made:

Page xviii, 14, 23,	urethral	instead of	urethral.
" 7,	albumin	"	albumen.
" 17,	alkaline	"	alkali.
" 25,	cannibalistic	"	canabalistic.
" 30,	and	"	although.
" 31,	neuclei	"	neuculi.
" 34,	involvement	"	involvment.
" 36, No. 5.	Usually	"	always.
" 45,	Bellevue	"	Bellevieu.
" 45, 50, 92,	cachexia	"	cacexia.
" 62,	ducts are	"	duct is.
" 73,	pathognomonic	"	pathognomic.
" 80,	soiled	"	soiling.
" 82,	fear	"	fever.
" 107,	cicatritial	"	cicitritial.
" 117,	urethral	"	internal.





A PRACTICAL TREATISE ON
SIMPLE
AND
CHRONIC SPECIFIC
URETHRITIS.

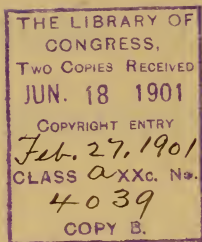
BY
✓
J. HENRY DOWD, M. D.
11

Late Genlto-Urinary Surgeon Buffalo Hospital Sisters of Charity, ex-Chairman
Surgical Section Buffalo Academy of Medicine, Member Medical
Association of Central New York, Etc., Etc.

ILLUSTRATED.



BUFFALO, N. Y.
A. W. LANDSITTEL.
1901.



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TO
THE LATE
SPENCER C. DEVAN, M. D.,
SURGEON, U. S. M. H. S.,

I dedicate this small volume,
in kind remembrance of the interest taken
in me
while serving as his house surgeon,
also for the many pleasant
hours spent in his
company.

THE AUTHOR.

INTRODUCTION.

So numerous are the works that have appeared within the last two or three years dealing with diseases of the mucous membrane of the male urethra that it seems almost a waste of time to try to improve, or bring forth anything new. In each one of these a chapter or more may be found devoted exclusively to what is known as chronic gonorrhea, gleet or urethritis, and simple urethritis is considered, but generally very briefly. The young man, and even the old one, procures these latest publications, carefully studying every word, the knowledge gained therefrom being applied to cases on hand, or to the first one applying for relief. What is the invariable result? Simply a prolongation of the trouble, and in the large majority of cases exaggerating the condition over that presented by the patient at the first call. Many times I have heard the remark, "I have used the very latest treatment, and it only seems to make the condition worse. What is the trouble?" To this I always reply, "You have overtreated the case." My assertion has been proven, for when a rest of a couple of weeks has been enforced, and the condition again treated on rational basis, the result has been but one, a rapid resolution of the inflamed membrane. In most books nothing, and in others very little, is said as to

when a specific (gonorrheal) urethral inflammation is beyond infection. Cases of this description are usually a nerve strainer to most medical men, but, taking into consideration that the Germans tell us that at least 85 % of the operations on the female generative organs are brought about by gonorrhea, no one can be excused for being in ignorance as to when a gonorrheal inflammation is cured; that is, beyond infection. Yet, how many pay attention to this? The patient has reported week in and week out, possibly for months, with that same morning drop. If, by some lucky chance, a strong injection suddenly stops the discharge the physician considers himself fortunate, and at once discharges the patient, although the washings of the urethra would show any amount of dequamation going on, any, or portions of which, if subjected to careful microscopical examination, would demonstrate the presence of cocci, capable of producing inflammation but not having the strength to continue a free secretion in the possessor. This is readily understood--they have been multiplying, and I might say fighting, for months to continue an existence on soil rendered barren by their long inhabitation. The patient, wishing to avoid a repetition of his experience, marries. These cocci, which have been found in the urethral debris, instead of being washed out by the urine, are forced from the canal at the time of sexual intercourse and land at but one place---against the cervix. Here virgin soil is encountered, and they

at once take on new life, causing inflammatory conditions which as a rule have but one ending, a miserable existence for the possessor with ultimate mutilation. The question may arise, Do not these women or their husband know that an infection has taken place? Why should they? The germs have been placed against an organ almost insensible to pain, and at least four inches from a surface that might be bathed by urine, which might give them the sensation (as in the male) of ardor-urinæ. Furthermore, between the infected locality and the meatus urinaris there is a barrier lined by epithelium that will almost withstand an attack of fire. Inhabiting this tube, if such it may be called (vagina) are bacteria which nature seems to have placed here for the protection of the delicate organs above from an invasion by bacteria of a virulent nature. In other words, these normal vaginal bacteria, although perfectly harmless to their possessor, seem to act in a cannibalistic manner to other germ life. The reason that women rarely know that they are infected is readily explainable. For a woman to have symptoms of gonorrhea, i. e., symptoms similar to those in the male, infection must take place at the vulva. The most important reason for its non-appearance here is the fact that when the discharge is coming from the male in quantities sufficient to exude from the urethra and be deposited at the vaginal opening the man in question usually has a chordee of a severity that prohibits sexual intercourse. It is only

when this chordee has almost if not entirely disappeared and with it the discharge, that he attempts intercourse. At this time there is only a drop that can be brought forward by pressure along the canal, but with ejaculation it is forced out and against the cervix. It seems almost a paradox, but the woman infected in this way does not present the disease again to her partner; still, if she seeks a second male companion he usually is infected.

Although my readers may think this a very exhaustive treatise on what has always been considered so trivial a disease, still I cannot help but say that from a wide experience in hospital and private practice I cannot retract one word that has been written. Simple urethritis has been dealt with most exhaustively for the reason that but little mention is made of this trouble in most text books. It must be acknowledged that in a previously healthy urethra inflammation rarely occurs, but as it does occur occasionally, patients with such a condition should be given a correct diagnosis; but furthermore and more important, it may save a person from the loss of a good name.

The urine has been considered in connection with this subject for the very good reason that if one wants to bring about a normal state in a membrane which is interruptedly bathed with a fluid they must have some knowledge of the make-up of this fluid, not only in health but in disease. It has been the author's aim not

to give a lengthy description of the urine, but rather to give a sort of epitome of the same to an extent sufficient to have a good working knowledge when dealing with disease of the urinary tract, especially in the conditions treated of in this work. Knowing that this work will in all probability fall into the hands of the younger members of the profession, that class to whom most of the patients flee to for relief, the writer has written without going minutely into detail, and has endeavored, as far as is practical, to give in chapter XIX. a condensed list of instruments, chemical solutions, microscopical appliances, stains, etc., necessary, not only for urinary work but also for operations on the urethra and adjacent parts.

J. HENRY DOWD.

378 Franklin Street,

Buffalo, N. Y.

May, 1901.

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CHAPTER I.

THE URINE.

Although it will be impossible in this brief work to go minutely into detail regarding the urine, yet a general knowledge of its composition in health and disease must be familiar to those hoping to bring about resolution in an inflamed membrane that is interruptedly bathed with this fluid. In many a case of gonorrhea rebellious to treatment a cause is at times found in a urine heavily charged with urates or uric acid. It is in the chronic conditions and especially with complications that we find this fluid one of our most valuable aids in diagnosing existing conditions, locating cause and even in giving a prognosis.

For the average case an examination like the following will be found very useful, but space will only permit of an epitome, leaving my readers to consult any good work on urinary analysis for further knowledge:

*Amt. 24 hours., Sp.G., Reac., Opaque, Albu., Sugar,
Urea, grs. 24 hours. Iudican, Chlorides.*

MICROSCOPICAL,

*CRYS. Phos., Oxal., Uric acid, Amor., Phos., Urates.
CASTS Hyaline. Epithelial, Waxy, Granular, Blood.
EPITH. Post. Ureth., Bladder, Ureters, Pelvic, Tubul.
SEDIMENT Pus, Blood, Mucus. Spem'zo., Tub.bac.,
other bacteria, Mucous cylinders.*

The average urinary secretion for 24 hours is stated to

be between 45 and 50 ounces, but this is liable to great variation. In the summer there is less secreted on account of free perspiration, while on the other hand there is an increase in cold weather. The ingestion of foods or liquors, especially the alcoholic beverages increase it and to a marked degree, at times. Extreme nervousness always increases it. A good plan is to estimate about 2 and 1-4th ounces as being the average hourly secretion during the day. On seeing the patient have him empty the bladder, at the same time ascertaining when he passed urine last. If suppose four ounces is passed in, say, one hour, of a watery color and eliminating Bright's disease, Diabetes and nervousness, we may with a fair degree of certainty accuse him of partaking of diuretics, possibly liquor, within three hours.

SPECIFIC GRAVITY. This is normally between 1015 and 1022, but it varies greatly and is in no way a positive indication of any disease. The gravity will be increased or decreased according to the amount of solids dissolved therein; thus, pus will not increase, where urea or urates will, it being found at times as high as 1035 and yet no pathological condition may be present.

Two or three glasses of beer will in an hour or more produce a urine having a gravity of 1010 or even 1006 still the kidney may be perfectly healthy. Generally speaking, when there is no special pathological condition present, a high specific gravity is due to an excess of uric acid, urea or urates and these at times acting as an

important factor in continuing the inflammatory process.

REACTION. Freshly passed normal urine should be acid in reaction. This at times in perfect health may be altered to a pronounced alkalinity. Neutral urine is never observed under normal conditions. Alkalinity is occasionally seen as a constant condition being present at any and all times of the day, where, on the other hand it is present in some persons only after a meal, especially if vegetables have been partaken of freely. In old chronic inflammations along the urinary track, an alkaline urine may be constantly present. Alkalinity as hyperacidity is very often a serious drawback to resolution.

DICKMAN says, "They are nervous and mobile, of a hypochondrical temperment having half gouty characteristics."

ODOR. Although this is of little or no consequence, freshly passed urine if amouical is usually an indication of bacterial decomposition in the bladder. This condition is as a rule due to some obstruction near the neck, most important being stricture or enlarged prostate.

Many foods and drugs impart to the urine a characteristic odor, examples of such being turpentine, asparagus and celery.

COLOR. Normal urine should be amber colored, (such as is on the mouthpiece of expensive pipes), but like the other characteristics this varies even in health. Diet, weather and nervousness play an important part in changing the color, which may vary all the way from that of

water to a dark brick red. When owing to free perspiration or the patient having a severe cold, a dark red is the rule. The color of the urine is always changed in disease, especially of the urinary tract. The most common is that of diluted milk, this being due to pus. Occasionally in the absence of inflammation, it is of an imitation amber hue, this being caused by urea, uric acid or urates in excess. In regard to results, this color, although not exactly normal, is the most favorable to find in cases of chronic urethritis.

TRANSPARENCY. Freshly passed urine, when normal, is perfectly transparent. If this is varied, i. e., any opacity exists, some abnormality must be present. Visual examination is important in every case and as will be shown later phosphaturia, vesiculitis, localization of urethritis and even urethral contractions can be diagnosed with a fair chance of correctness. Turbidity of the urine is due to the following causes, which occur in the order of frequency named: PUS, PHOSPHATES, BACTERIA, SEMEN, MUCUS, EPITHELIUM, BLOOD, OXALATES; URIC ACID AND URATES.

ALBUNIN. It has been and still is a much debated question whether serum albumin occurs in the urine under normal conditions. Some maintain that it can be found in the urine of perfectly healthy young adults, as after a cold bath, mental labor and during menstruation. Albumin is the coagulation of blood serum (as a rule), and this fluid escaping from the vessels anywhere along the

urinary tract will give rise to the reaction. It must not therefore be supposed that albumin comes only from the kidneys. If seminal or prostatic fluid is mixed in the urine, and even at times in the course of bladder and urethral inflammation, albumin is found; still in the case of the former this is said to be nucleo-albumin. It is generally conceded by authors that albumin is always found in pyelitis, although at times it is present in such small quantities that the finest test is called for in its detection. At the same time blood corpuscles are quite evident, especially if in the acute condition, or during an exacerbation. Albumin is not always an accompaniment of nephritis, unless in the acute condition, which generally means the parenchymatous variety. It is also present in the chronic form of the latter, but interstitial nephritis may or may not be accompanied by albumin, generally not.

GLUCOSE. Sugar is in no way a symptom of inflammation of the urinary organs, but if diabetes complicates a case of gonorrhea it is very necessary that its presence be known as it (the disease) may seriously interfere with recovery. This substance, as that of albumin, has received much careful study and investigation as to whether or not it can occur in normal urine. The consensus of opinion now is that sugar (glucose) is found in normal urine, but in such small quantities that its presence is only detectable by the very finest tests and is not characteristic of any pathological condition.

UREA. "This is the most important nitrogenous constituent of the urine, representing under normal conditions from 85 to 86 % of the total amount of nitrogen eliminated by the kidneys."---*Simon*. The remainder (nitrogen) is excreted as URIC ACID, HIPPURIC ACID, etc. It is not positively known when urea is formed, but from numerous experiments it is supposed to be in the large glands, such as the liver and spleen and not in the kidneys, as was at one time supposed, for, after removal of the latter, urea has been found in the blood and tissues. It must not be supposed that pathological conditions can in any way be accurately determined by the amount of urea eliminated, for on the one hand the nitrogen may be markedly eliminated as uric acid and thus urea be greatly diminished, where, on the other, the reverse may be present. In cases of nephritis, where it is supposed to be diminished to a marked degree, I have found it much in excess of the estimated daily amount, yet both patients were at the time dying, having marked uremic symptoms. To have a positive result of the amount of nitrogen eliminated it is necessary that the amount of nitrogen-bearing elements be known.

INDICAN. During intestinal putrefaction Indol which is formed is oxidized in the blood to Indoxyl. This, combining with sulphuric acid, is eliminated as Indican. By careful research it has been definitely determined that Indican is formed solely in the presence of micro-organisms and that its only source is the large intestines

In pathological conditions this substance is increased. Such may be mentioned intestinal putrefaction, accompanied by indigestion (intestinal), carcinomata of the stomach, acute, subacute and chronic gastritis, acute and chronic peritonitis, pyelitis and many other diseases in connection with or involving the gastro-intestinal tract. Simon in his book says that it is as important to test for indican as it is for albumen or sugar, and that points of decided importance, not only in diagnosis but also prognosis, may be gained.

CHLORIDES. The chlorides found in the urine are derived almost entirely from the food and occur chiefly as sodium chloride. They are found in varying amounts from 11 to 15 grms. per 24 hours. This amount is greatly varied in diseases, at times being almost entirely absent. They are decreased in all febrile diseases with the exception of intermittent fever. In this condition they are decreased, but not to the extent as in other febrile conditions. It is said that the chlorides are diminished according to the severity of the acute febrile condition existing. By this it may be assumed that during such a febrile condition an increase of this urinary constituent would mean an improvement in the condition. One author says that a continued increase over 15 to 20 grms. in 24 hours is pathognomic of diabetes insipidus.

CHAPTER II.

THE URINE.

MICROSCOPICAL APPEARANCE.

CRYSTALS. The various crystals like phosphates, oxalates, uric acid, together with their companions the amorphous variety, are frequently seen in apparently normal urine; especially is this true of the amorphous salts. Little dependence can be placed in them as a diagnostic symptom, yet, when they are constantly present, they usually indicate some systemic derangement, but further, and most important, they at times act as a factor in prolonging inflammatory conditions of the urinary tract.

PHOSPHATES. The earthy phosphates consist of two varieties (a) triple or ammonio-magnesium phosphate, and (b) calcium phos. or phosphate of lime. The former, although assuming different modifications, have two distinct forms [1] coffin shaped, and [2] the star shaped, feathery crystals. The second, calcium phosphate, appears either as crystals, which are very rare, or amorphous, being very common. The latter when seen in the urine gives it a greenish-white appearance, is readily dissolved by acids and when allowed to settle forms in a solid like mass in the bottom of the glass, much resembling fine white sand. It is this substance that gives the opacity to the urine when boiled and unless

acid be added for dissolving might simulate albumen. There is no special disease characterized by phosphaturia. They are found in connection with irritative affections of the prostate and bladder, general debility, convalescence from acute diseases, despondency, and in certain individuals after every meal. Roberts says: "Crystalline phosphate of lime is an accompaniment of some grave disorder, such as cancer of the pylorus, phthisis and exhaustion from obstinate chronic rheumatism."

OXALATES. These occur in either alkaline or acid urine, most commonly the latter. When it is found in acid urine it is usually associated with uric acid, where, if present in alkaline urine, phosphates are usually associated with it. They always occur as crystals and in 2 forms (a) octahedral, and (b) dumb-bell. They are occasionally mistaken for the triple phosphates, especially when these are small and imperfectly formed. When doubt remains acetic acid will prove the condition by dissolving the phosphatic crystals, where the oxalates will remain unaffected. As with phosphaturia, the oxalates characterize no special disease, but a certain train of symptoms are found present in those who have a continued oxaluria. (See works on urinary analysis.) Diet plays an important part in the production of these crystals and foods known to be rich in oxalic acid should be avoided while inflammation of the urinary tract is present. Such are cabbage, spinach, asparagus, toma-

toes, grapes, and one or two others. Another prolific cause of oxaluria is intestinal indigestion, a correction of which often quickly causes their disappearance from the urine.

URIC ACID. These crystals are rarely if ever found in any but sharply acid urine. Occasionally they are seen in freshly passed urine, and it is a common occurrence to find them in urine 10 or more hours after standing. They are found sooner in cold than warm weather, but unless they appear in from 4 to 6 hours no pathological significance need be attached to their presence. It is these crystals that form in the bottom of vessels, to which the laity give the name of brick dust. Generally speaking, under the microscope they differ from all other crystals in being colored, usually an orange red. It is denied by Purdy, but acknowledged by Simon and Tyson, that crystals of uric acid at times appear perfectly colorless. These latter are not of the star formation, but rather rhombic in character. [The author has seen them several times, all of which were perfectly colorless.] There is no doubt that a urine heavily charged with uric acid acts pronouncedly in preventing resolution. Therefore it is well when dealing with inflammations of these parts to prohibit any and all things known to favor such a condition. The same will refer to the amorphous variety. The subject is but briefly mentioned in text books, but as practically all urinary calculi are composed of one or more of the crystals mentioned, the finding of

these in the urine, together with symptoms of stone, render the diagnosis more positive, and furthermore the kind of stone may, with a fair amount of certainty, be ascertained.

CASTS. The pathological significance of, as also the formation of urinary casts, is a much disputed question even at this late day. The most rational explanation of urinary casts, together with their importance is found in the conclusions of Dr. Wm. H. Porter (Philadelphia Medical Journal, April 2d, 1898.) He says:

1. That serum-albumin as a single proteid substance is a thing of the past.

2. That the epithelium of the uriniferous tubules excretes the various forms of proteid substances that are found in the urine.

3. That it is through this excreted proteid material that our casts are formed.

4. That there are two distinct classes of casts, one denoting no structural change in the renal gland, and one that does indicate positive retrograde changes.

5. That we may find casts and no albumin and vice versa, and that the former is not infrequent.

6. That the one class of casts can be found in almost every sample of urine submitted to the centrifuge.

7. That we are enabled by a close and careful study of the kind and amount of proteid bodies eliminated through the kidney, together with a careful study of the size and character of the casts to determine the exact

condition of the renal glands, and in fact of the system at large.

In cases of true Bright's disease, or where casts are found in the urine, even though they be an indication of a circulatory change only, much interference will be found to rapid and progressive resolution.

EPITHELIUM. Until recent years it has been a much disputed question as to whether it was possible to locate the genito-urinary epithelium as coming from any one certain portion of the tract. Close observers have brought this subject to a point where one can say those cells are from a given locality. Carpenter (Buffalo Med. Journal April, 1898) says: "Variations in size and shape exist, not only between the cells of different parts, but between the cells of the same part depending upon the condition at that place, the existence or non-existence of inflammation, and whether the cells are superficial or deeply seated in the lining membrane. Sufficient variations in size and shape can be found to accurately determine the previous location of cells as they occur in the urine. Many times it is difficult or even impossible to definitely locate a lesion from the clinical symptoms in a certain case, and in these cases the information gleaned from a careful observation of the urine, particularly the cells occurring in it, is of inestimable value." It is possible at times to find epithelium from the different parts of the urinary tract in perfectly normal urine, but at certain times during inflammatory processes

cells are found in large numbers and by shape and condition showing trouble to exist. I quote the following from the article :

TUBULAR, 1 LAYER. Columnar.

HENLEY LOOP, Squamous. Not granular.

PELVIS, 1. Battledore.

2. Round, about twice the size of pus cell.

URETER. 1. Spindle-shaped, large.

2. Small, round.

NECK AND PROSTATE, 1. Circular and very refractive.

Along the urethra, simple columnar until meatus, when they are like prostatic.

Cells from small renal tubes are always round and about half the size of pus corpuscles; from the large tubules they are about half again as large.

VERY REFRACTIVE.

1. Fossa navicularis.

2. Prostate, opposite the sphincter.

3. Convolved tubules.

PUS. Any inflammatory condition of the urinary tract will show its existence by the presence of pus in the urine which will be rendered opaque, ranging in degree according to the amount of trouble present. These cells are supposed to be spherical and contain but one nucleus. If acetic acid is added to bring this out it may appear as one, two, three, or even four distinct spots, yet when a high power is used they will be found to be all connected, their appearance being due to the different shape in

which the cell is seen. There is no practical difference between pus cells, mucous corpuscles, or leucocytes, and either of the latter may be found in the urine at all times. Differentiation between these and pus is made by the number present. In case of the former but very few are found even following centrifugalization, where in case of pus, the cells are innumerable. It is very necessary to locate the origin of pus where possible and as an aid, symptoms are of great value. In the absence of a venereal history, and when no symptoms are present, referable to the posterior urethra or bladder, pus in the urine may be suspected as having its origin higher up---the kidneys. At times it assumes formations which aids greatly in locating the origin, thus, if found in clumps, (15 to 25 cells) in acid urine and upon standing settles to the bottom of the glass in a compact mass, the kidney, especially the pelvis, is the seat of trouble. In old cases of cystitis the urine is usually alkaline and pus is present in great quantities. Visually, pus in the urine may be confounded with *amorphus phosphates*, *urates mucus*, *bacteria*, *epithelium* or *spermatozoa*. Chemical tests will to a large extent clear up any doubt, but the microscope is absolutely necessary for a positive differentiation.

BLOOD. When blood is found in the urine there is some pathological condition present. The appearance varies according to the character of the urine in which the cells are found. Ordinarily there should be but little or no trouble in distinguishing red blood corpuscles from

pus or small round epithelium. They appear as bi-concave discs of a yellowish hue, evenly distributed over the field, and when seen in fresh urine their outline is almost perfect. When the urine is old they become somewhat shriveled, presenting an uneven outline. The origin of blood may be located with a fair amount of success by visual examination and questioning. Thus, if it appears first, precedes the urine, the urethra may be thought of. If after the outflow is almost if not completed, it again appears and fresh, the posterior urethra or bladder neck, but when it is thoroughly mixed with the fluid and of a dark brown character, the kidneys is usually its source. Blood is occasionally present in acute gonorrhea, when the inflammation is severe. It may then precede the stream. Fresh blood appearing after the flow, is indicative of acute posterior urethritis, cystitis, venus congestion at the internal sphincter, tumors of the bladder, stone, etc. When intimately mixed with the urine some grave kidney lesion may be suspected.

MUCUS. Mucus is always found in the urine, yet in health there may be so little that it is practically undiscernible without the use of the centrifuge and microscope. In all catarrhal conditions, especially old cystitis and pyelitis, mucus is often found in abundance. It gives to the urine a syrupy appearance and if disturbed after standing will be found to be very ropy. Where very little is present it has a tendency, on standing, to form in a ball-like condition near the upper surface of

the urine, but in time it always sinks to the bottom of the receptacle.

SPERMATOOA. These are occasionally seen in perfectly healthy individuals, although in most cases it will be possible to obtain a history of a former inflammation involving the posterior urethra or that the patient had practiced masturbation. It is not an uncommon occurrence during gonorrhea to occasionally see the voided urine contain these in great numbers. This is due to a relaxation of the ejaculatory sphincter, allowing them to enter the posterior urethra, where they may gravitate backwards, intermingling with the urine in the bladder. Following coitus the first urine passed generally contains spermatozoa, these being washed out from along the canal, where they may have adhered. Where spermatozoa are found only occasionally, especially if there is an inflammatory process present, but little attention should be paid to them as they will disappear as soon as recovery takes place. When a drop appears at the meatus following the urine or defecation, the microscope must be used as it may be pus or prostatic secretion.

TUBERCLE BACILLI. Even in the presence of positive symptoms of tuberculosis of the genito-urinary tract, the germ necessary to prove that disease is often wanting. When the disease is thought to be present examination must not stop with one or two slides; neither should one sample of urine be considered sufficient, but rather at least a dozen slides should be made of as many

different specimens before making any positive statements. The author has known thirty slides to be made, each of which was examined very carefully before the germs were found. In making examinations the small, dark-colored, cheesy masses should be sought for as they are the portions most liable to contain the bacteria.

OTHER BACTERIA. In the absence of inflammation of the genito-urinary tract freshly passed urine has always been supposed to be sterile, i. e., free from pyogenic bacteria; but such is not a fact, for without genito-urinary inflammation such bacteria as the colon or typhoid bacilli are to be found. At least 40 different varieties (Purdy) of bacteria have been found in urine, but these must be divided into two classes, those possessing pyogenic powers the others none. Only the non-pyogenic will be considered, these being classed as *moulds, yeast and fission fungi*.

MOLDS. These are rare, but if diabetic urine is allowed to undergo alcoholic fermentation they may usually be found upon the surface.

YEAST. These only develop in acid urine, ceasing to multiply as soon as it becomes alkali. They are about the size of a red blood corpuscle and are distinguished from the latter by irregularity and that they usually occur in bead like strings. When yeast is found sugar is generally present.

FISSION FUNGI. This variety is usually present in any urine having a tendency to undergo putrefactive changes.

They appear under the microscope in chain-like formation, rod-shaped, long spirals, or as cocci. With a half inch objective these bacteria can be seen in active motion. At times they may be found in freshly passed samples, and unless chloroform or some similar drug is added will always develop in urine if allowed to stand for some time. They give to the urine a modified ground glass appearance, will not settle to the bottom on standing and the fluid cannot be rendered clear by use of the centrifuge. They are found quite commonly in the female, also in cases where there is urethral obstruction, catheter sounds, etc., having been used.

MUCOUS CYLINDERS. (See works on the urine.)

CHAPTER III.

SIMPLE URETHRITIS.

SYNONYMS. Non-virulent, non-specific.

Definition. An inflammation of the urethra due to *bacteria other than the GONOCOCCI.*

CAUSES :

Predisposing, Irritation due to : Substances in the urine ;
Substances from without ; Excess in venery, or
Alcoholics, and Psychical.

Exciting : Bacteria, derived from either internal or external sources.

In 1876 Noeggrath made the statement that 80 per cent. of males had gonorrhea, that 90 per cent. of these were never cured and could infect. This statement is true in a large measure, still, as he acknowledges later, it was a great deal too strong. Without hesitancy it may be safely stated that although the healthy urethra can become inflamed by germs other than the gonococci, in about 90 per cent. of the cases of what are proven to be a simple inflammation there existed a previous involvement, and this was of a gonorrheal nature. It is possible that only a small granular spot was present or the normal calibre of the canal was impinged upon to an unmeasurable degree, yet both conditions would be capable of producing a loss of resisting power in the surrounding tissue. Furthermore, with the above

there is always a more or less inflammatory condition present, yet there may be no pyogenic cocci excepting the strepto or staphylococci. With such a condition it can be readily understood how excessive coitus, traumatism from operation, the rough usage of sounds, etc., might light up the old foci and cause a general inflammation of the whole canal.

It is yet impossible to say where congestion ends and inflammation begins, but one thing is evident for the production of the latter there must be pyogenic bacteria present. One other factor is necessary for the production of inflammation, a lowered vitality of the tissues, and this is just the condition produced by congestion. It is thus evident how the condition known as lithemia can not only make a rich soil for germ cultivation, but furthermore can, and does, aid greatly in prolonging inflammations (involving the urinary tract) due to gonococci or other bacteria. As regarding the bacteria found in the urine and capable of producing inflammation, the colon bacilli are the most important. Hall says: "Found normally in the intestinal canal and ordinarily about the foreskin, vulva and neighboring parts, it is occasionally found in the normal anterior urethra. It is usually harmless when found in these localities, but is extremely pathogenic in many cases if transmitted elsewhere." The colon bacilli can and often do cause many diseases as cystitis, nephritis, pyleonephritis and inflammations of various other portions of the body. Further, Hall

says: "It is well known that cystitis is often caused by the introduction of the organism upon the catheter from the outer orifice of the urethra." If these statements can be accepted as facts, and various experiments have been made that positively prove that they are capable of producing inflammation in a bladder previously congested to an extreme degree, what is to prevent the same organism from causing urethritis? I am positive that in a case seen by me not long ago, the inflammatory condition was due to the colon bacilli, the remote cause being the presence of urethral polypi which had become irritated, due to excessive coitus, plus a urine for some reason loaded with phosphatic crystals. By careful examination, finding no gonococci, the woman was sent to me for a like examination. There was no evidence of gonorrhea, and furthermore positively no gonococci, although many slides were examined. In the man the colon bacilli were numerous. I think the case was proven to be correctly diagnosed for the reason that, after removal of the polypi and restoration of the urethra to a normal condition, the man in question had sexual intercourse with the woman, and although often repeated no return of the trouble has manifested itself. In a paper by Dr. J. Clifton Edgar, 1899, he has given the results of careful examinations of the vulva of pregnant women and says: "Of 30 cases examined the staphylococci was found 8 times; *s. aureus* 3 times, streptococcus once; negative or sterile, 19 cases, *coli communis* was

not found." Although this deals entirely with pregnant women the same, or possibly worse, state of affairs could be found in the non-pregnant. As these bacteria have known pyogenic power it may be stated conclusively that in a previously healthy urethra which has been congested for a time, due to oxalates, urates, alcohol or excess in venery, inflammation may take place, the gonococci in no way taking part as a causative agent, but rather one of the enumerated being the offending germ. These bacilli may be the only germs present, but more often there are other pyogenic bacteria demonstrable with the microscope, and in these cases careful questioning will bring out the fact that at some time there had been a previous specific (gonorrheal) involvement. It should be thoroughly understood that the condition known as lithemia cannot cause inflammation, *per se*, but they (the salts in the urine) can and do cause more or less congestion, and the colon bacilli or other pyogenic cocci either taken from the vulva or by migration from the rectum, anterior urethra, or by way of the kidneys, produces the inflammation. There seems to be no doubt that certain irritant chemicals when introduced into the healthy urethra are at times followed by inflammation. What bacteria are the causative agent in every case is as yet undecided, but one thing is sure, the colon bacilli have been found. Whether they were in the canal or gained entrance from the meatus is a question, but one case, the patient never having gonorrhea, in fact never

having had sexual intercourse, following an injection of nitrate of silver (the reason for which I could not ascertain) caused a typical urethritis, careful examination failing to show bacteria other than the colon bacilli and a few germs known to inhabit the urethra normally. (See plate No. I, showing these.)

There is little doubt that urethritis can be produced by the introduction of unclean instruments, but as instrumentation is generally called for in some condition caused by a gonorrhea, and for the treatment of a canal in which there exists a lesion, it is clearly evident that there were pyogenic bacteria present and due to rough handling, plus an unclean instrument, the old localized spot was irritated and possibly infected sufficiently to cause extension involving the entire membrane. It is possible for the bacilli already described as being found around the glans to gain entrance into the urethra and cause an inflammation. In the case of the polypi already alluded to, I think this was the mode of invasion, for, of the three small tumors present, the first was located almost at the junction of the urethra with the glans. Visual inspection of the part showed intense inflammation of this and the surrounding tissue. Alcohol or excesses in venery only act as a predisposing cause in a healthy urethra, but where there are old localized inflammatory spots, either of the above abuses can so irritate them that a general inflammatory condition is produced, no gonococci being found.

There is no doubt that a urethritis can be produced by worry and I have seen such a case which tallied in every way with a gonorrheal infection, excepting the presence of the bacteria necessary to call it by that name. Although no gonococci may be found after careful search in every case of this description, it will be possible to obtain a history of former specific inflammation and the urine will show that there are localized spots of inflammation if not of stricture formation. In these cases the patient is generally a married man and the intercourse illicit. The constant worry that he undergoes, thinking of possible venereal infection, accompanied as it is daily with stripping to find a discharge sooner [in my case eight days] or later owing to the phosphaturia which causes pronounced congestion, irritates the old spots, to an extent that an acute inflammatory condition is established. Urethritis at times follows instrumentation, especially cutting operations in the urethra, but it is safe in every case to conclude, that although there is an inflammation present containing no gonococci, these germs have been present at some time and have left telltale marks of their former presence in the shape of sub-mucous spots harboring bacteria capable of being revived and producing trouble, accompanied by symptoms slightly less severe, but resembling in every way those due to *specific urethritis*.

As to the infectiousness of this form of urethritis, the description of the same occurring in chronic specific ure-

thrititis will amply suffice. [See infectiousness of chronic specific urethritis.]

Although the microscope is a very valuable instrument for arriving at the true condition in the male, in the female it will fail in most every case to show the gonococci, even though the patient may be suffering from an acute infection. That this is a positive fact, the author has proven time and time again. As an explanation of this it may be stated that in at least 50 per cent. of the cases the infection takes place at the cervix, and as referred to further on, the vagina being inhabited by bacteria which seem to be of a cannibalistic nature, gonococci that find their way into this tube are immediately destroyed. Therefore symptoms, such as eroded cervix, swollen cervical crypts, free and prolonged menstruation with ovarian or tubular involvement, is in the great majority of cases more positive than the microscope.

The opinion cannot be expressed too forcibly that there was never a specific inflammation (gonorrheal) produced in a healthy male (even though there may have been a former inflammation, but this entirely cured) urethra by secretion from the vagina, either menstrual or leucorrheal, where a careful examination, visually, digitally and microscopically, did not show evidences of gonorrheal infection being present at some time:

EXPLANATION, PLATE I.

Normal urethral cocci and bacteria, the former resembling the staphylococci, the latter the Tubercle, Typhoid and Bacillus coli communis.

Mucus. Pus. Epithelium, caudate and round.

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The accompanying plate is an exact reproduction from a case of the author's with the camera lucida, Spencer 1-12th oil emersion lens and methylene blue as the stain.

PLATE I.



CHAPTER IV.

SIMPLE URETHRITIS.

SYMPTOMS, DIAGNOSIS AND TREATMENT.

SYMPTOMS. These are similar in every way to acute gonorrheal infection, only of a much milder type. The first appreciable symptom, an itching or crawling sensation, is described as being somewhere along the canal unless the infection has taken place at the meatus, as in the case already cited (papilloma). Incubation varies and may be from one to ten, or even fifteen days. The discharge, at first muco-purulent, becomes purulent less rapidly than in acute gonorrhea, and it is rare to find the characteristic hue so common in gonorrheal cases. The urine is almost characteristic as a diagnostic point. When the case is seen early (within 48 hours) if the condition is due in any way to irritation of a previous inflammation (submucous inflammatory spots following gonorrhea) the urine, instead of being opaque to a more or less degree, is only very slightly turbid, and in the fluid will be found shreds and debris characteristic of some old inflammatory trouble. The inflammatory reaction is less severe than in specific urethritis, it being quite uncommon to find chordee, even where no measures have been used for its prevention. Invasion of the posterior urethra is slow and at times patients will not complain of frequency of urination throughout

the case, although the urine, viewed in two glasses, will show but very little if any involvement of that region. I have never seen epididymitis accompany the condition, but still this complication might arise at any time. Ardorurinæ is present, but only to a degree where questioning of the patient will bring out the fact. It must be understood that although this simple inflammatory condition is much milder than a true gonorrhea, at times and especially if irritated, the condition assumes great virulence as the following will show: X. Y. aged 27. M Acute gonorrhea first and only time, Sept., 1890. Discharge continued for a long time, finally stopping entirely. In 1894 the patient called complaining of slight frequency of urination, dribbling and other symptoms leading one to think of stricture. Examination of the urine, also the canal, showed such a condition to be present and located immediately in front of the compressor muscle. This was dilated to normal and the patient instructed to call every six to ten months for examination and the passage of a sound, if necessary. He did not return for two years at which time the stricture was found considerably contracted. It was again dilated to normal, but he again neglected it as before not returning until some time in 1900 when the following condition was found to be present: slight discharge, urine clear, excepting shreds, no ardorurinæ and positively *no gonococci*. For some time he had been using a condom for the prevention of infection. The condition was explained and appropriate

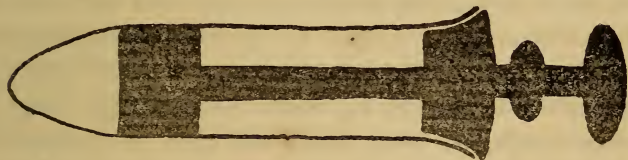
instructions given. The discharge began to let up on the fourth day, he practised intercourse, assuming it was not a case of gonorrhea and that this would do no damage. On about the third day after this the most aggravating symptoms appeared, such as urination every twenty minutes, severe pain following the act, with blood and temperature ranging at 100 to 103 F. Examination showed an acute double vesiculitis, also a large and tender prostate, the urine being loaded with pus and albumin.

DIAGNOSIS. There is but one absolutely positive way of differentiating between specific and non-specific or simple urethritis, viz., the microscope. Although this instrument is one of the greatest helps in medical diagnosis, to use it with any degree of correctness much practice and a fair acquaintance with the various bacteria (especially those found in this region) is absolutely necessary. Inhabiting the normal urethra and around the meatus are found bacteria resembling the tubercle and colon bacilli and from this latter the former must be differentiated. Undoubtedly the pus cocci are often mistaken for the gonococci, at times resembling the latter, being found in pairs, intracellular or at least in close proximity to the pus nuclei, having lost their characteristic grouping through spreading, etc. The pseudo-gonococci of Lustgarten most resemble the gonococci and great care must be exercised in differentiating between them. In view of the above it is safe to say that unless

one is very familiar with the microscope and bacteriology the safest method of differentiation is dependence upon symptoms. (Where evidence may be called for in a criminal case or divorce may be the result of an opinion, it is always best to refer these to some one skilled in bacteriology thus saving yourself much annoyance and chagrin should the case come to trial.) As previously referred to, the urine is the most important point in diagnosis and great care should be used in examining the same both visually and microscopically. In acute gonorrhea, and even exacerbations of a condition not too old, the urine takes on an opacity that becomes more pronounced as the inflammation progresses, showing marked involvement of the whole membrane, no shreds or debris being seen. On the other hand, in a condition of urethritis developing from an old spot of dilated and inflamed membrane the urine may be opaque to a more or less degree, but floating in the liquid will be found shreds and debris. Even though the condition may develop in a canal which has never been inflamed before the urine rarely takes on the degree of opacity as seen in acute gonorrhea. The history of the case is valuable, for if, as is seen occasionally, inflammation develops in the urethra of a person known positively to be in a condition preventing coitus or the same arises following an operation where the patient has been continent for weeks we can have little hesitancy in assuming that a non-specific inflammatory infection is present.

TREATMENT. Pathologically there is no difference between a simple and specific urethritis, excepting with the latter variety the gonococcus is present, where in case of the former there is generally some previous pathological condition which usually acts as a predisposing cause and must be removed before a cure is complete. The symptoms being of a mild type internal medication is rarely called for, but general hygienic and dietary measures must be carried out as closely as though the case was one of gonorrhea. In all cases it

FIG. 1.



is absolutely necessary to first remove the general inflammatory condition of the membrane, this being best done by very weak antiseptic astringents, as the author's tablet for the treatment of the first stage of acute gonorrhea.*

R̄ Hydrarg. Chlor. Cor., gr. $\frac{1}{10}$

Pot. Permang., gr. $\frac{2}{5}$

M. Dissolve in 5 oz. of hot water.

Sig. Use six or seven syringefulls a.m. and p. m.

*For urethral injections by the patient no syringe should ever be advised excepting one with a blunt point, as shown in Fig. 1. It can be made of hard rubber, all glass or glass with a soft rubber tip.

If the use of the above for a week or ten days is sufficient to clear the urine the cause should be immediately sought for and removed where possible. In some cases where the inflammation is marked it may be necessary to follow the above by the use of a purely astringent solution and in strength sufficient to overcome the inflammation. For this possibly the best is the zinc sulph. sol. (See chronic specific urethritis.) As has already been stated, the predisposing cause of these conditions in the majority of cases is due to some result of a gonorrhea, and this is evidenced in the urine. Stricture, chronic inflammatory spots and follicular involvement is characterized by epithelial desquamation. Finding such, the canal must be searched either by bulbous bougie, or by aid of the electric light. Any of these conditions being found they must be treated according as described for the same occurring in chronic specific involvement. Polypi must be removed, using antiseptic precautions. It is scarcely necessary to mention the fact that the canal should be put in a normal condition, and when this is accomplished excess in venery, alcoholics, or a urine loaded with salts of any kind, will never produce a relapse. (See treatment of chronic inflammation of the urethra.) There is one class of cases where it is not necessary to await the action of astringents or antiseptics, viz: Psychical. In this condition the urine is usually perfectly clear to the naked eye, excepting for the presence of one or several

shreds, these indicating urethral contraction behind which the canal is in a dilated and chronically inflamed condition. After thorough flushing with Formaldehyde, careful exploration will usually detect some obstruction, even though it be but one number [French] below the normal. When the contraction or inflamed spot is positively located the canal should be dilated at once (using judgment as to amount), after which the whole membrane should be flushed with a 1-14000 sol. of silver. [Never use anything but distilled water.] In nearly every case all trouble stops at once. The dilatation should be repeated at intervals of a week until the urine shows the absence of shreds and pus, this indicating that the membrane is in normal condition.

It is rarely necessary to give medicine internally for this condition. Where there is a marked oxaluria or uric acid is in great excess, these conditions should be remedied. Balsams or other stimulating diuretics tend only to cause stomach derangement, with possible lowering of the patient's vitality, and for that reason cannot be advised. When the condition assumes a type of severity, as shown in the case reported, the patient must be put to bed immediately, all local medication stopped, controlling the symptoms by opiates until the acute inflammatory condition has entirely subsided, when the case should be treated according to the methods advised for chronic specific urethritis. (See treatment of that disease.)

SUMMARY.

1. The term Simple Urethritis, called so to differentiate it from an inflammation of the urethra where specific (gonococci) germs are present, is a misnomer and should be changed as it is misleading to the inexperienced. It must be acknowledged if both are treated with the same amount of precaution the non-specific variety yields more rapidly and resolution is established sooner, but knowing that it is not of a gonorrheal nature often makes both physician and patient careless and the result may be far worse than if a true specific infection was present.

2. Excepting in case of a most positive history of non-infection, expertness in the use of the microscope or where a medico-legal case is in question, all urethrites should be considered as specific.

3. Diatetic and hygienic instructions must be advised and carried out as carefully as though the disease was of a specific nature.

4. A simple urethritis is infectious, i. e., may cause an inflammation in the opposite sex through the presence of strepto. or staphylococci.

5. There is always a predisposing cause which must be removed, otherwise the result will be a return of the trouble.

CHAPTER V.

CHRONIC SPECIFIC URETHRITIS

SYNONYMS. Chronic gonorrhea, gleet, chronic clap, and chronic urethritis.

Definition. A chronic inflammation of the urethra, following an acute condition, the latter being due to gonococci.

Various are the opinions as to when an acute specific urethral inflammation assumes a chronic condition, i. e., when progressive resolution from the acute or subacute stage ceases and the membrane takes on a chronicity, the duration of which at times is prolonged for years. Otis once said: "Any case of urethral inflammation that subsided inside of six weeks is not a gonorrhea." To-day we know this statement to be erroneous, for although the large number of ten to fourteen day cures may be questioned, still it is the good luck of every surgeon to occasionally see a perfect result in three weeks. Much must be taken into consideration before attempting to fix a definite time when one can say this is a chronic condition I am to deal with. Many complications may arise during the acute or subacute condition which may prolong the inflammation, but after their subsidence and active treatment is again resumed the case goes on to complete recovery. Such conditions may be

mentioned as epididymitis or epididymo-orchitis, severe chordee, edema, producing phimosis or periphimosis, with accompanying balanitis. (There is no doubt but that the medicinal treatment used by some physicians add greatly in prolonging the acute condition and in this way postponing a chronicity.) Other facts must be taken into consideration before an unqualified answer is admissible. A complete cure of gonorrhea occurs, not when there is no visible discharge, but when there is no discharge and the morning urine is free of all urethral desquamation, (shreds and chunks of pus.) This may suffice in the majority of cases, but we do find those where the above conditions may be present, but if the semen or prostatic fluid be examined it will show that a latent inflammatory action is present and that there is germs, gonococci, which are capable not only of producing inflammation in the female, but of infecting a healthy anterior urethra in the individual. It does not mean that the urine must be transparent, for turbidity may be marked, but evidences of localized or general inflammation should be absent. Morning urine may be turbid from various causes, such as phosphates, mucus due to extreme congestion along the urinary tract, or, as occasionally occurs, the semen may find its way into the posterior urethra and become thoroughly mixed with the urine in the bladder, rendering both portions of the glass test opaque. Viewing the treatment of acute gonorrhea from a most rational standpoint and with no

serious complications intervening, it is safe to say THAT A URETHRAL INFLAMMATION EXTENDING OVER EIGHT WEEKS HAS REACHED A STAGE WHERE RESOLUTION HAS BEEN CHECKED AND CHRONICITY IS ESTABLISHED. The causes of continued urethritis are many, and though some may be considered trivial, they are at times very important in continuing inflammation.

Too much attention cannot be given to a careful examination of the urine in every case (see chaps. 1 and 2) for here may be found one and the most important factor as a causative agent. It must be remembered that although gonococci are the cause of the large majority of urethral inflammations, still the urethra can and does become inflamed from other causes, and this inflammation may be continued indefinitely. Although this condition will be dealt with more fully later on, a word of explanation here may be of value. As an example of such a condition a case may be assumed. The individual contracts a gonorrhea, which after possibly months of injection and manipulation ceases to flow, but there remains trouble in the urethra which in time will become localized at one or more spots in the form of a chronic inflammation involving the deeper tissues and resulting in but one thing, stricture. It is well known that as soon as contraction takes place there is an obstruction to the free and normal flow of urine and but one thing follows, dilatation of the canal behind the obstruction. A condition of chronicity existed already,

and now the irritation produced in the obstructed passage tends to increase the trouble and the thin membrane becomes inflamed throughout its entire thickness. This is well demonstrated if the small shreds or debris be examined microscopically for they will be found to consist of pus cells, degenerated epithelium and numerous cocci. These cocci need not necessarily be specific (gonococci) but strepto. and staphylococci are found in great numbers. As a result of such a condition we often see that after a night's debauch in which sexual intercourse has been practiced freely, the next or subsequent morning a slight moisture, and even a drop, may be brought forward to the meatus. The woman is at once accused of giving infection, when in reality the excesses partaken of has simply intensified the old condition to an extent that pus is produced in macroscopical quantities. This one thing is the main reason for patients telling you they have had a gonorrhea ten or twelve times. The condition is the result of a chronic inflammation of the urethra, and had the membrane been put in a normal condition at first infection no return would have manifested itself. Cases of this description must be regarded as chronic urethritis, but unless the physician can demonstrate such to be a fact (by aid of a microscope) the patient, to avoid serious complications, should be treated as though infected with an acute gonorrhea.

CHAPTER VI.

CHRONIC SPECIFIC URETHRITIS

CAUSES.

The causes of chronic urethritis are many, and although at times some trivial condition may be thought not to be of much account in continuing the trouble, this slight discrepancy may be the sole and only preventative of resolution. These may be classified under various headings, and as far as possible in order of their frequency:

1. Early and persistent interference.
2. Thickening of the membrane, localized inflammatory areas.
3. Granulations.
4. Stricture.
5. Contraction of the navicular valve and small meatus.
6. Anemia.
7. Constitutional conditions.
8. Lithemia.
9. Prostatic or vesicular involvement.
10. Folliculitis.
11. Idiosyncrasy.
12. Want of tone in the tissues.

EARLY AND PERSISTENT INTERFERENCE.

There is no doubt that early and persistent interfer-

ence is the most important factor in prolonging urethral inflammation. This statement, although radical, is made without fear of contradiction. Case after case of this description, extending over a period of months, has been quickly and permanently cured by stopping all instrumental or other local [office] measures, giving the patient a rest for two or three weeks, and then for a few days treating him in a rational manner. That the above statement is not theory should be evident to all my readers after trial. We are dealing with an inflamed membrane, said to be more delicate than the conjunctiva, yet what treatment does it get? Constantly irritated, day in and day out, and this by sounds, for it is a fact that certain authors advise the passage of such instruments daily for the cure of a chronic urethritis. Not this alone can be considered as the only cause of irritation, for irrigations and deep injections are used that will cause trouble in a perfectly healthy membrane. It is not denied that not only the sound but medication with the same drugs may be and generally is necessary in almost every case, but the time at which they should be used and the strength of the solution is the important point. Invariably it is the rule, if discharge does not entirely disappear in four or five weeks, that sounds are at once brought into play, and as a result thereof the trouble is continued. Even from an internal view, measures are being used which can and do act as an irritation, not necessarily from any effect produced upon the urine, but by the con-

tinued administration of copabia and other drugs thought to be specifics the patient's stomach is put in a condition whereby mal-assimilation is produced and food is of no value to the partaker thereof. In other words, by interference with normal assimilation the tissues of the patient become relaxed, resisting power is wanting, and the membranes cannot in any way assist in the work they should perform.

THICKENED MEMBRANE.

This is a condition that is present in every case of acute gonorrhea, and when resolution is perfect this thickening entirely disappears; but perfect resolution from an acute gonorrheal inflammation is a result that occurs only in a small percentage of cases. The thickening may be located anywhere in the canal, but usually it is found in the deeper, more vascular and dependent portion up to two inches in front of the compressor. It is known that the slightest deviation from the normal (in any part of the body) will surely be accompanied by some trouble, and in the urethra it manifests itself in the shape of irritation to an already irritated or inflamed spot. The result of such a condition is obvious, and but one thing occurs, exuberant granulations or increased thickening, with more urinary obstruction, and this, followed by dilatation of the canal behind, an extension of the inflammation from the thickened portion, both anterior and posterior thereto, such resulting in the for-

mation of pus which can be seen at the meatus. This is the condition that writers formerly laid much stress on, denominating the same stricture of a large calibre. As granted, such a condition acts as an obstruction to the free passage of urine, but as there is no cicatritial tissue present and in all probability no new tissue formed in these conditions it cannot be considered stricture, as we regard such a formation. Instead of removing as much of the surrounding inflammatory trouble as possible before trying to eradicate the cause, the reverse is attempted, the cause is sought for and its removal tried at once. There is but one result, the thickening may be to a certain extent squeezed out, but at the same time the surrounding inflamed tissue is irritated to a degree that simply prolongs the trouble.

GRANULATIONS.

As already stated, these spring from an area of inflammatory thickening and it is safe to assume that their presence is due to irritants, let these be sounds, irrigations, injections or powders applied locally. If the surrounding membrane is in a fairly normal condition the secretion from this is not very copious, being merely enough to cause a glueing of the meatus which, if opened, allows a small pin-head drop to be brought into view. Of course if they involve the membrane to any extent the discharge may be markedly free.

STRICTURE.

As alluded to elsewhere true stricture as a complicating factor must not be thought of during the first infection, unless the case has extended over many months or there is a history of injury to the parts, and then not unless the urine shows positive evidence that such a condition may be present. The earliest development of well marked stricture seen by the author and following gonorrhea, with no history of traumatism, was one year. The patient was seen with Dr. Robt. Taylor in Bellevue hospital in 1895. Even here the veracity of the patient's statements was much in question. As admitted, thickened membrane, granulations, or a well developed navicular valve will, to a certain extent, offer an obstruction to the free flow of urine, but none of these conditions can be considered as true stricture. The urine is the most valuable aid in the diagnosis, without the use of the searcher, and as in this condition there is always more or less pus present such an instrument, except under certain well defined conditions, should not be used until the urine shows by its clearness (except possibly shreds) that all general inflammation is removed and only the local condition remains. Shreds indicating urethral contraction must not be confounded with a similar appearance found in all samples of urine accompanying progressive resolution from an acute or recent chronic inflammation, for in the latter case they generally disappear as the membrane clears up, where on the

other hand they are characteristic of obstruction (stricture or marked thickening of the membrane) the urine may be perfectly free of pus, but one or two shreds will remain until the canal is dilated to its normal calibre. These shreds, when indicative of contraction, are well formed, looking much like pieces of thread, one-half to three-quarters of an inch long. When these characterize localized inflammatory areas they are illy defined, being ragged and uneven, resembling a piece of string with a knot or two tied in it. It has been stated heretofore that trouble exists until the urine is entirely clear; therefore if shreds are present after the urine is free from all visible pus, discharge or no, the canal should be searched for stricture or other obstruction. The rule that no instrumentation should be attempted until the urine is clear must be adhered to, yet occasionally a case is met where after most careful treatment both specimens appear similar, excepting, possibly the first which may contain well marked shreds (*tripperfaden*). Such a condition is usually due to stricture, behind which the membrane is in a state of chronic inflammation and seeming to insist on remaining so until the cause is removed. In searching for urethral stricture nothing but a bulbous instrument should be used, those made of silk being much preferable as they more readily follow the urethral curves. A urethrometer is a very unsatisfactory instrument, and as a New York surgeon once said to the author, "with one of those instruments a stricture can

be found in any urethra." Either a well developed navicular valve or the compressor muscle will catch and hold the searcher, yet neither of these structures should be considered a stricture, for although the former may to a certain extent obstruct the free flow of the urine it is a normal anatomical structure and is present in every male. As at least sixty seven per cent. of strictures are situated in the deep urethra, and at times immediately in front of the aforementioned muscle, the searcher should be made to enter the posterior urethra, this being evidenced by the sensation of urination which the patient experiences the moment it passes this muscle. The fact must not be forgotten that accompanying all cases of stricture there is more or less pus found in the urine. The amount and source of this product of inflammatory action depends entirely upon the age of the contraction. In any and all conditions the inflammation is more marked in close apposition either in front or behind the strictured portion of the canal. In cases of long standing, especially if the patient's vitality has become impaired by long continued suppuration the trouble extends backwards and upwards involving the prostate, ureters and kidneys. The urethra being involved it must be considered a chronic urethritis, and as stated heretofore excess in alcoholics, coitus, etc., often aggravates the condition to the extent of producing a subacute inflammation at times diagnosed as a fresh infection.

CHAPTER VII.

CHRONIC SPECIFIC URETHRITIS

CAUSES (CONTINUED.)

CONTRACTION OF THE NAVICULAR VALVE.

A well developed valve or a very small undilatable meatus will act exactly like a stricture and continue the trouble indefinitely unless relieved. There can be but little doubt that the valve which was well developed before inflammation had attacked the canal was by the use, or rather abuse, it received from syringe points (see fig. I), plus the inflammation, hypertrophied so to speak, that in the fourth week it is found to be acting as a decided obstruction. The urine which is usually highly acid meets the obstruction and is thrown backwards, the dilatation caused there, together with the friction produced, keeping-up a state of chronic inflammation.

ANEMIA.

This condition, when well developed, is undoubtedly a prolific cause of continuing the trouble. The causes are various, but barring those that may be present from a constitutional condition, it is usually found that the anemia is due to the heroic administration of capabia or other drugs that have deranged the stomach and intest-

inal tract to an extent that assimilation is seriously interfered with. Another and the most important cause of acquired anemia is the long continued and profuse suppuration which the patient has undergone.

CONSTITUTIONAL CONDITIONS.

As referred to above, this may be the sole cause of the anemic condition, in fact the condition of anemia may have been present before the patient contracted the inflammatory trouble. A constitutional cacexia not only being one of the most important causes of continued inflammation is as bad as the inflammation itself. This does not necessarily mean that cancer, Bright's or tuberculosis are not bad conditions of affairs unless accompanied by urethral inflammation, but I do contend that latent genito-urinary tubercular foci may be revived and set into activity by the acquirement of inflammations along the urinary tract. This has been well proven to me in two or three cases. In one, a man aged 45 whose immediate family had all died of tuberculosis never exhibited a symptom of the disease until he contracted a gonorrhea which extended over a period of two years or more before there was a secession of the discharge. About this time he noticed that he was getting up at night to urinate and the urine was slightly opaque. The prostate was accused of the trouble and appropriate measures used, all of which proved of no avail. The urine was carefully examined

but at the time no evidences of renal involvement was apparent, the trouble seeming to be located exclusively in the posterior urethra and prostate. A perineal section was done with bladder drainage for ten days, at the same time stretching the gland to 45 F. Very little improvement followed this and repeated urinary examinations were made. Finally, after much trouble (see examination for tubercle bacilli) the *bacilli of tuberculosis* were found and also evidence of pelvic involvement. The patient was put upon valerinate of creosote and a change of climate advised. Almost immediately there was improvement and although the patient is living, had he continued to reside in a favorable climate, his condition might be much better than it is at present. The other two cases were of a similar nature and should go a long way towards proving the fact that undoubtedly there were *tubercle bacilli* in the body and all that was necessary for their revivement into action was a continued inflammation which would lower vitality at the same time producing a soil upon which they could grow and thrive.

Cancer, Bright's disease and diabetes are very important as causative agents. Syphilis, when present, although it may not manifest itself externally, exerts a marked influence, at times, in the prolongation of the existing condition. Especially is this true if there is present what is termed a *cacexia*, or rather external evidences that the patient is suffering from some constitutional disease which is known to be *SYPHILIS*. To me this disease as a

causative agent has a standing in the front rank, and in two cases (females) of genital inflammation although heroic measures were used, immediately upon stopping the constitutional treatment the trouble relapsed at once. The importance of syphilis as an adjunct in continuing inflammatory processes is well shown where infection (non-specific) attacks the mucous membrane, the process being under visual observation. Vaginitis of gonorrheal origin is thought to be quite common, in fact to be an accompaniment of all inflammations of the female genitals, but the fact is, the vagina is rarely involved. Occasionally we find it to be the case, but in the only two cases coming under my notice in the past three or four years the patients were *syphilitic*, one having the disease about six years with treatment only three months at the commencement, and the other having it about four years with interrupted treatment during that time. I may state that these two were from a series of about 25 cases of inflammation of the female genitalia, and although strong solutions of silver nitrate were used, without anti-syphilitic treatment the trouble seemed to remain at a standstill. Almost exactly the same condition is found in the male, but the inflammatory process not being within reach of the eye, excepting possibly by endoscopic examination, (a very undesirable procedure in inflammation of the male urethra) we do not see the complete standstill that ensues in the presence of syphilis.

CHAPTER VIII.

CHRONIC SPECIFIC URETHRITIS

CAUSES (CONTINUED.)

LITHEMIA.

That the condition known as lithemia plays an important role in the prevention of resolution is a well known fact. When this is evidenced, as it is by a hyperacidity of the urine which, if submitted to the microscope, shows a field covered by oxalates, uric acid crystals, etc., we see these as small, perfect, glass-like looking chips with sharp edges, and when the condition is marked the field may be entirely covered by them. Now imagine every drop of the urine to be simply saturated with these and this fluid to pass over a delicate membrane for at least nine inches. I grant that the same condition may be found in the urine of an individual never having an inflamed urethra and that they rarely cause trouble for the possessor, but when inflammation has once attacked the part they act as a powerful agent in maintaining the same. As stated before, the condition may be present in an apparently healthy individual and the person pass through an attack of gonorrhea without developing these, but as a rule they are usually present. In a number of cases it may be the result of

some constitutional condition, such as *rheumatism*, or where digestion is faulty, but in a majority of the cases it is an acquired condition, this being due to medication and the want of hygienic precautions necessary in inflammations of the urinary tract. Probably one of the greatest causes of the condition known as oxaluria is due to long continued administration of *copabia*, *cubebs*, etc. These drugs, when long used, tend to produce a condition in the gastro-intestinal tract whereby assimilation is sadly interfered with, the result being the production of oxalates in large quantities. I have seen a low form of urethral inflammation continued for nearly six months where by the most careful examination no other cause could be found than the fact of a urine loaded with uric acid crystals, or the same in perfect solution. The urates may be considered a most prolific cause at times; especially is this marked in those who are in the habit of consuming large quantities of malted liquors. Their urine is of a high color, high specific gravity, and if allowed to cool assumes a dirty color, becoming very opaque. A test for this condition, and it is said that this is the only condition of the urine where transparency can be brought about from the same procedure, is to heat the liquid, when, if the opacity is due to urates, it becomes transparent at once. One other most important factor in the production of oxalates, urates, etc., is diet and hygienic rules observed. All articles of food known to be rich in oxalates, etc., should be prohibited,

especially during the acute condition and to a certain extent during the chronic stage, provided there is a tendency to the condition known as lithemia, and if this is present they must be dispensed with entirely. All cases should be subjected to well directed hygienic rules, exercise and bathing being enforced, in this way ridding the system of much pent-up material that has a tendency to irritate the mucous membrane of the genito-urinary tract when allowed to pass over this membrane in excessive quantities. Under this heading, and as a condition of lithemia, we have the disease *rheumatism*. This, in connection with lithemia, I have found to be one of the worst impediments to resolution.

PROSTATIC OR VESICULAR INVOLVEMENT.

It must not be taken for granted that in the absence of symptoms referable to these structures they may not be involved. Still, on the other hand, unless the involvement is acute, we do not find these parts affected unless the trouble has been long continued, subjected to the rough use of sounds, etc., or stricture exists. As before stated the anterior, and for that matter the posterior urethra, may become normal, as is evidenced by discharge or debris in the urine, yet from some excess in venery or the free use of beer, infection can take place, the infectious material coming from either the prostate or vesicles. Think of gonorrheal epididymitis developing months and even years after a supposed cure of an

acute gonorrheal infection that was not accompanied at the time by any testicular involvement.

FOLLICULITIS.

In the absence of a rapid cure of gonorrhea these small cavities in the urethra are often accused of being the fortress that is harboring the cocci and continuing the trouble. It may be safely stated that they are at times the source from which gonococci appear, thus infecting a membrane which may have been put in a normal condition by injections or otherwise, but I will state, without fear of successful contradiction, that follicles harboring cocci which can appear on the membrane and cause trouble are rare. When there is a follicular involvement that can produce a condition as described above there will be symptoms that cannot be mistaken, and if appropriate measures are used the proof of their existence will be manifest by the entire disappearance of all inflammatory trouble. (See treatment of this condition.) In the treatment of at least three hundred cases of chronic urethral trouble during the past four years, follicles that were harboring the infecting agent was only found in four cases. Among these one was an acute condition in a patient where from previous experience I was aware that unless resolution took place in due time folliculitis might be suspected. The discharge ceased and the urine cleared up, assuming a normal transparency, but upon discontinuing treatment the trouble occurred

at once. I again put the membrane in a normal condition and at once looked for follicles, which I found and destroyed, this being followed by an immediate stoppage of all trouble. A case of chronic urethritis cannot be considered well until all evidences of inflammation disappear from the urethra, plus the other conditions already referred to. At times cases are seen that, although there may be no discharge, and even if sexual intercourse and liquors are partaken of temperately, no trouble seems to manifest itself yet the urine does not clear, but contains shreds, etc. If these shreds are examined they will be found to consist of degenerated epithelium, a few leucocytes, and possibly cocci, but not always of an infectious nature. Examination of the canal by the methods now in use (electric light) generally shows that certain localized spots (usually in the deep urethra) are present where the membrane seems to be of a dark red color and slightly thickened. This can well be described as a localized inflammatory area and involving the submucous tissue. A condition of this kind should not be allowed to continue, for it is at these points that stricture is prone to form. (See treatment of them.

IDIOSYNCRASY.

There is not the least doubt but that in certain people there is some peculiar condition of the system that predisposes them to inflammations, and this is continued in

the absence of a well defined cause therefor. It cannot be said, as of catarrh, that climate is the cause, for the urethra is not a tube for the conveyance of air, and air never passes over it, except where it may be injected from a syringe or otherwise. Yet we do find individuals that, after the removal of every possible cause and the application of the most careful and appropriate treatment, still insist upon retaining a chronic or catarrhal condition of their urethras following a specific infection.

WANT OF TONE IN THE TISSUES.

This is of course only a manifestation of some other condition, and most of these have already been referred to. Although there may be no constitutional cause present, a person who has subjected his system to all sorts of abuse for a long time will find that upon the contraction of a specific inflammation that he does not respond to remedies that are known to bring about a normal condition from one of disease. As an example of this kind of person the "social" man may be mentioned. During the winter months he subjects himself to the greatest kind of fatigue. Late hours, late suppers, usually consisting of every imaginable undigestible article that can be put on a table, excessive use of tobacco, and at times liquor, all these things, plus many others, have but one tendency, a system far below par as to resisting power. There is a class of individuals who, although they may not submit themselves to any of the intemperate habits

above referred to, nevertheless have no resisting power whatever in the tissues. These may be spoken of as lymphatics and their faces are the barometers. If their features are carefully scrutinized it is at once seen that that ruddy look of health is absent and a sort of pasty complexion is noticed, appearing as though they were almost bloodless. When these people are attacked by inflammation it seems to extend as rapidly as a fire in a bundle of shavings. Under this heading will come all constitutional conditions (see the same as a cause) either malignant or otherwise. Possibly one of the most important of the latter class is Bright's disease. In the interstitial condition it is a well known fact that the patient is rarely aware of his malady until applying for life insurance, or possibly not recovering from some apparently trivial urethral, prostatic or other trouble of the lower urinary organs, it is found when the urine may be examined for a possible case that chronic intestinal inflammation of the kidney is present and is the one factor that is withholding complete resolution in the parts mentioned. Chronic renal trouble is usually evidenced in some way by the urine, and in a large majority of the cases by a visual examination. Thus, when there is a continuous light colored fluid, always seeming to be increased in amount above the normal, the kidneys must be thought of as cause, careful examinations being made to ascertain if such be a fact of the general constitutional condition.

CHAPTER IX.

CHRONIC SPECIFIC URETHRITIS

CLINICAL EVIDENCES.

It seems almost a loss of time to refer to the symptoms of chronic urethritis, yet, it must be remembered that while there is pus in the urine and this discharge, or no, is known to come from the urethra, the case must be classed as one of chronic urethritis and as such should receive treatment. Assume the condition present to be at about the eighth week and that the posterior urethra is, as it always is, involved, the usual history obtainable is about as follows: Moisture at the meatus urinaris, varying from a simple glueing together of the lips, a drop of fluid in density from that of pure water to a thick creamy pus, or a constant discharge all day resembling either of the latter in consistency. The discharge may have entirely ceased, to return at the least indiscretion, or there may be no return, but a visual examination of the urine will show (unless there is complete resolution) a diminished transparency, ranging all the way from a clumping of pus and mucous, accompanied by many fine shreds, to one of complete opacity, the urine resembling either diluted milk or cider. It may safely be stated that where the latter condition is found, and there is no discharge, the opacity is due to trouble behind the compressor muscle. This is more positively proven by using

the two glass test. To gain positive aid from the urine as a diagnostic agent the morning fluid should be taken ; that is, the first passed in the morning. It has been the author's findings that to thoroughly wash the anterior urethra at least two ounces should be caught in the first glass, the remainder in the second, or where it is known that at least six ounces may be in the bladder this rule may be dispensed with and the patient told to divide the quantity as near as possible. If the first is most opaque, and this is the rule, there is no doubt that the anterior urethra is suffering more than the posterior. Should both glasses appear about the same, the trouble is more marked behind the compressor, and may be higher up than the internal sphincter. The first containing shreds with a slight amount of pus, the second also slightly opaque but with minute specks floating through it (prostatic plugs) is almost pathognomic of prostatic involvement. Although some of the plugs from the prostatic sinuses may be washed away and appear in the first glass, they are more apt to be in the second, and this is due to the fact that when the prostate closes down they are expelled. Excepting in severe involvement of the posterior portion of the canal, or in the presence of a highly neurotic patient, but few subjective symptoms are complained of, with the exceptions of a slight increase in frequency which is always present. Occasionally there are slight neuralgic-like pains complained of in the groins, and these shooting towards the

testicles, but this is not entirely due to the urethral inflammation, *per se*, but generally shows that the prostate is involved, and they are reflex manifestations of this together with the trouble in the posterior urethra. A constant pain in one or both groins is sometimes present; if careful examination is made the inguinal glands will be found slightly enlarged. An occasional symptom complained of is the appearance of pus, or whitish material, at the meatus, after the bowels move and at times following the urine. This is usually indicative of vesicular involvement, but spermatorrhea should be eliminated. If the discharge has been profuse and the length of time drawn out since the original infection, a careful scrutiny of the patient will show that he is suffering more or less from the continual drain. Questions will bring out the fact that such patients fatigue much more easily than before they were infected. Unless there are complications present involving the prepuce or glans there is no external evidence of anything wrong. Where the discharge is very profuse, the balano-preputial membrane may be involved and manifest itself in the shape of a marked balano-phostitis, and this at the same time may be accompanied by phimosis or periphimosis. Quite a common development about this time are venereal warts. They appear as little excrescences, scarcely noticeable to the naked eye, but become larger rapidly, at times covering nearly all the preputial membrane. Various nervous symptoms accompany this condition, and at times

these are especially marked in those patients of a neurotic temperament where the posterior urethra has suffered severely and the prostate is more or less involved. Emissions are of frequent occurrence, and should intercourse be attempted, ejaculation is premature and accompanied occasionally by pain deeply in the perineal region, the semen being tinged with blood. When this occurs it may positively be assumed that the ejaculatory duct is more or less involved. Sudden darts of pain, starting near the rectum and extending to the glans, where there is a sort of explosion, is frequently encountered. Much fear is experienced by the patient at seeing a drop of glycerine-like fluid appear at the meatus at or after defecation. This is supposed to be semen; it may be, but in the majority of cases where there has been no previous trouble and no history of frequent emissions it is undoubtedly urethral mucus or prostatic fluid and is due to a hypersensitive condition of the gland (prostate) or urethral glands. At times the patient thinks he can locate the trouble in his urethra by the slight irritation or itching sensation experienced at a certain spot or spots. It cannot be advised unless absolutely necessary, but if the electric endoscope is used the canal will be found to be nearly if not normal in appearance at the spots described, the symptoms in question being simply a reflex manifestation of trouble at some other point, or when such occurs a day or two after the stoppage of medication it is usually a most positive sign that the trouble is relapsing

and will soon make its presence known by a return of the discharge. This localized irritation can in no way be taken as an evidence of follicular involvement, but in case where irrigations, even the first may stop all discharge, in fact clearing the urine off any and all debris, yet in twenty four to forty eight hours thereafter there is an irritation at or near the meatus, this soon (2 or 3 hours) being followed by a profuse discharge, follicular involvement should be suspected at once. Unfortunately for the medical profession there has never been a post-mortem obtained at this time (urethral pruritis) and for that reason a theory must receive attention. It is the author's opinion that where relapse occurs, either from a localized spot or follicle, the membrane at this location has not assumed a chronic condition, but is yet in a state of acute inflammation and being continued so, due either to bacteria in a state of activity, or, being dormant, they through some irritation either internal or locally, resume activity sufficiently to multiply the specie and upon the already weakened and congested tissues exert their power.

Finger in his work on gonorrhea lays great stress on involvement of the *caput gallinaginis* as the important cause of most of the nervous symptoms seen in patients suffering from chronic gonorrhea. From most careful observation it is the author's opinion that although that portion (*veru montanum* or *caput gallinaginis*) of the anotomy may be involved, the prostate is also involved and is accountable for many of the symptoms.

CHAPTER X.

CHRONIC SPECIFIC URETHRITIS

DIAGNOSIS.

It is scarcely conceivable how a mistake can be made in the diagnosis of chronic urethritis, yet cases are occasionally met with that necessitate the most careful examination before being positive of the origin of the discharge and also the pus in the urine. To thoroughly understand the source of pus in the urine, particularly if when the two glass test is used, one must understand the physiology of urination. The urine enters the bladder at an average rate of about two ounces every hour (this is liable to great variation, weather, ingested fluids, disease, etc., at times greatly increasing or diminishing it), filling the same to a degree when the resistance of the internal sphincter is overcome and the fluid is allowed to enter the posterior urethra. As near as I have been able to judge this phenomena occurs in about two hours after previous evacuation. It is now seen that the posterior urethra forms what may be called the neck of the bladder, and there is a direct opening between it and the bladder proper. Any substance that may be occupying that portion of the canal between the compressor and the internal sphincter at once mixes with the entering urine and can pass backward into the bladder, there

becoming mixed with the bladder contents, rendering the same opaque. As nothing can pass from the anterior urethra backwards (behind the compressor) it is evident that when pus is found in the second glass it is coming from behind the compressor. In the absence of gonorrhea, or where the case is of long standing, this secretion may be coming from other localities. (See examination of the urine as to epithelium.) The two glass test is very necessary in every case; in fact, the urine of a patient having chronic urethritis should be examined in this way at every visit and careful notes made of the condition found. As heretofore stated, the morning urine should be the specimen examined where possible, (this must be seen when fresh, as standing renders it opaque, due to development of bacteria) but where this is an impossibility, patients should be instructed to hold it as long as possible, so as to pass at least two ounces in the first glass. (A four ounce glass is best suited as the receptacle, being about the size of a dollar at the base and gradually enlarging upwards.) Opacity varies, being from that of sour cider in both glasses to a slight turbidity of the first glass, containing shreds or chunks of pus, with a second glass so transparent that only centrifugalization and the microscope will show pus. On the other hand, about the same condition may exist, excepting the second is slightly more turbid, and floating in the same are seen numerous little specks (prostatic plugs) that have been occupying the mouths of the

prostatic sinuses and have been squeezed out as the bladder has contracted to expel the last few drops. Besides being a valuable adjunct in the diagnosis the two glass test with its contents is a good, if not the best, aid in judging the progress of the case. One thing is positive, as the urine becomes cleaner shreds will appear, and the appearance of these indicate that the inflammatory process is becoming localized in certain spots. The appearance of shreds in a previously opaque urine is to me the most positive indication of progressive resolution being established. It is quite common to find semen in the urine of patients with inflammatory conditions of the posterior urethra, and unless one is very familiar with the appearance of pus or phosphates they may be easily misled into thinking that an increased opacity may be due to pus, etc. For this reason it is advisable to use the microscope in any case where the urine has been becoming cleaner day by day but suddenly becomes quite turbid. Although it has been stated that every case involves the posterior urethra at the time mentioned other tests may be made where great accuracy is demanded. A solution of methylene blue is injected slowly into the urethra, where it is allowed to remain for at least three or four minutes, so that thorough staining can take place. The syringe used for this purpose should hold at least half an ounce, for if a smaller one is used the injected fluid will not fill the canal to an extent sufficient to dilate all the small crevices and folds

thus reaching debris contained therein. The urine should now be passed into two separate glasses; that from the anterior urethra will be stained when anything from the posterior urethra will remain colorless. Care should be taken that at least two ounces or more of urine is passed into the first glass, otherwise the second portion may bring forth shreds, etc., that have been closely attached to the mucous membrane and were removed only by continuous pressure. The same result can be obtained where blue is given internally, excepting that the debris, etc., in the posterior urethra will be stained, instead of that coming from the anterior urethra. With this procedure the urine must be held in the bladder as long as possible, so that the posterior urethra becomes a part of the bladder and thorough staining is allowed to take place. Washing the anterior urethra thoroughly is another method for obtaining the same result, but should be done very carefully so as not to allow the water used to pass the compressor, thus carrying the anterior debris with it. The patient should be cautioned to hold the compressor tightly closed, as through trying to prevent urination. The best syringe for this purpose is the Ultzman, with the author's modification. Too much force must not be used, but the urethra should be distended until a sensation of dilation is felt by the finger holding the penis, or the thumb on the piston shows the canal to be full and that the compressor is acting as an obstruction. This must be repeated several times,

until the water returns perfectly clear. Although the microscope is a most positive aid, one must be very familiar with the appearance of the epithelium from different portions of the genito-urinary tract before too much dependence can be put on this instrument. (See epithelium chapter on urine.) A careful knowledge of the secretion found at the meatus is very necessary before giving any positive opinion as to the condition of the urethral canal. There may appear at the meatus a morning drop or a continual discharge throughout the day, and yet there may be no inflammation in any part of the canal. On the other hand, this same condition may be present in a patient who has had a gonorrhea, yet the latter disease may be entirely cured. These secretions may consist of mucus, prostatic fluid or semen, any one of which at times may resemble pus to such an extent that only differentiation is possible by aid of the microscope. Examples of such conditions are, in the case of mucus, ungratified sexual desire whereby there will appear at the meatus a drop of glycerine-like material that may be only momentary, or, as I have been told by patients complaining of such, there may be a decided moisture for hours. This is usually found in young men who have never practised the sexual act and will appear at the least provocation until it becomes a condition that is present to such an extent that they will complain of occasionally feeling a drop strike against the leg. This condition which is described under the

name of urethorrhea is not due to inflammation although it may follow in the wake of gonorrhea, and continue to manifest itself after all evidences of that disease have disappeared. This discharge consists simply of *mucus, a few epithelial cells and leucocytes* and is due to an irritation of the mucous membrane with a hypersecretion from the glands of Cowper and Littre. This discharge must be distinguished from prostatic secretion (prostatorrhea) which is *thin, grayish, milky-like, having the peculiar seminal odor, is not tenaceous and upon the addition of a one per cent. solution of phosphate of ammonia, Boettcher's crystals are found, these being characteristic of prostatic secretion. On the other hand, urethral secretion is clear, (glycerine-like) has no seminal odor, is soapy-like to touch, quite tenaceous and at times causes glueing of the lips of the meatus.*

The loss of prostatic fluid other than at the time of sexual intercourse has a name for itself, prostatorrhea. Being as it is a subject of itself, readers will be left to consult some work dealing with it specifically. Suffice it to say that the microscope will quickly decide in making a differential diagnosis from pus, etc., by finding the prostatic elements present. The secretion may appear simply as a morning drop, or the meatus may be continually moistened by it. It is the author's opinion that of all abnormal secretions found at the meatus, prostatic fluid, alone, is the rarest, in other words, true prostatorrhea is a very rare disease.

CHAPTER XI.

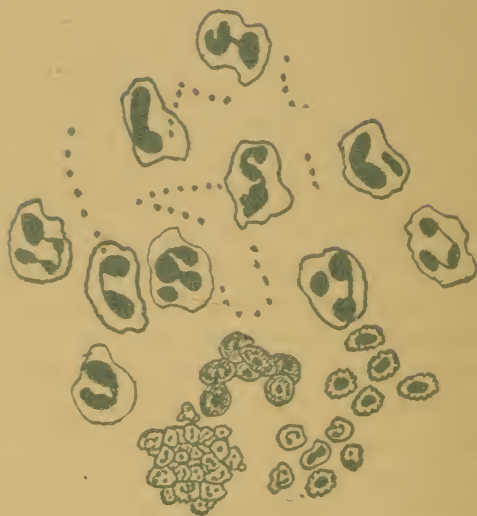
CHRONIC SPECIFIC URETHRITIS

INFECTIOUSNESS.

There is no doubt that acute gonorrhea is one of the most infectious diseases with which the human race has to contend, but where this infectiousness ends is a much disputed point. This should not be, knowing as we do the germs that are capable of producing inflammation, that these are easily demonstrable by aid of the microscope, and a little technique that should be familiar to all.

In all gonorrheal inflammations of the urethra at least three forms of pus-producing cocci are found, and it seems that until these are absent infection is possible. It may not necessarily be a gonorrheal infection, but a simple inflammation due to the staphylo (see plate) or streptococci (see plate) a condition that is almost if not as severe as one due to the gonococci. (See plate.) If we must believe the general surgeon who fears these germs, why should we not fear them, knowing, as the microscope will prove, that they are present in the small shreds found in the urine which passes through a canal not positively free from inflammation? We must certainly believe the above to be a fact, therefore an unqualified answer would be an absence of pus cells, gono, strepto, or staphylococci, in fact the washings of the urethra should show that inflammatory action had en-

PLATE II.



EXPLANATION, PLATE II.

In the upper two thirds is shown pus cells as seen with the oil immersion lens, the nuclei being stained with methylene blue.

Streptococci, in and around the pus cells.

The chain-like formation shown, is the characteristic manner in which these cocci appear.

(The following is as seen with the 1-6th obj.)

In the lower one third is shown pus cells, singly and in a cluster the nuclei being brought out by acetic acid.

The clumping of the pus cells as shown, together with other findings in the urine, plus renal symptoms (at times only slight pain in the lumbar region on deep pressure) is almost pathognomic of involvement of the renal pelvis by inflammation.

Above the pus clump is seen pelvic epithelium in shingle-like formation, this also being very characteristic of involvement of that locality.

To the right may be seen blood cells having the appearance of being some time in the urine since escaping from the vessels.

The accompanying plate is an exact reproduction from a case of the author's with the camera lucida, Spencer 1-12th oil immersion lens and methylene blue as the stain.

tirely ceased. Although there should be no appeal from the above, it must be taken into consideration that at least six out of every fifteen men have at some time of their lives suffered from gonorrhea and that it is rarely if ever the canal reaches the condition it was in previous to involvement. In other words, a urethra that has once been damaged by a specific inflammation will always show some evidence of the same. Such evidence is found in the urethral debris, this being brought forth by aid of the urine and is usually visible to the unaided eye in the form of shreds (tripper-faden) or chunk-like formations. It depends entirely upon the formation of the above mentioned whether the condition is serious or no. Where careful microscopical examination shows (the almost invisible shred to the naked eye) only a few degenerated epithelial cells, mucus in excess, possibly only a dozen or more pus cells and a few small sized strepto. or staphylococci, but little fear need be experienced of any bad result following marriage, provided of course other well known fortresses for infection have been examined and found free from involvement. Where there has been epididymitis, vesiculitis, or prostatitis present it is well, even in the face of a urethral condition as above, to have the patient first urinate, then, with the use of a condom, perform the sexual act, bringing the contained secretion for careful examination. If the spermatozoa are found to be undersized, withered-like in appearance and pus cells are present, (see pus cells in

plates I, II, III, IV,) consent by no means should be given until the part is rendered normal, as will be shown by healthy, full-grown spermatozoa and the absence of pus cells. Much might be said as to mixed infection, but my readers can only be referred to some good book on bacteriology, as the consideration of such a subject would be beyond the scope of this small work.

PROGNOSIS.

Much must be taken into consideration as to what constitutes a cure of gonorrhea. If, on the one hand, we accept the opinion that a gonorrhea is never cured until the urine (most minutely examined) shows positively no evidence of any inflammatory action being present along the genito-urinary tract, it is seldom a cure is obtained. To look at it from a more conservative standpoint, a cure beyond infection, or damage to the possessor, is possible. Certainly my words can be verified by a little questioning on the part of the physician, and it will be found that many men who had gonorrhea in their younger days are now married, and neither they or their wives ever complain of the least symptom that might be referable to the result of early indiscretions. There is no doubt that a good prognosis could be given in almost every case, provided irritation was avoided, and the condition treated in a rational manner, although it might not exactly tally with the opinion of some supposed great authority upon the subject. There is no doubt

but that many men have been rendered sterile or impotent by the too frequent passage of sounds at the wrong time. Although these instruments are very necessary in the majority of cases in aiding the absorption of inflammatory deposits of the mucous membrane, they are at the same time just as injurious if used too frequently when not necessary. (See use of sounds in treatment.) The general surgeon is seen to scrub and wash the part to be operated upon until the epidermis is removed, and this he tells us is for cleanliness, to prevent infection, yet if the same man is to pass a sound the canal receives not the slightest attention. In the large majority of cases where a sound is necessary there is trouble in the canal and this of an inflammatory nature, producing pus.

Generally the patient is not asked to urinate, but the sound is passed forcing any debris that may be present, not only into the follicles of the anterior urethra, but into the prostatic sinuses, and wonder is expressed why the patient developed an epididymitis, follicular prostatitis or other complication. The complication is relieved and treatment renewed but only to find that the condition does not improve, in fact is worse if anything. The patient may, after weeks or months of suffering, seek or be sent to the specialist who at once finds that some portion of the genital anatomy has been so seriously involved that it is a grave question whether it will ever be possible to again bring the parts to a normal condition.

CHAPTER XII.

CHRONIC SPECIFIC URETHRITIS

URETHRAL ANTISEPSIS.

Infection of the urinary tract arises from two sources, internal and external. Of these internal causes no one now doubts that the colon bacillus can and does enter the kidney from the blood stream. But that these germs can cause nephritis *per se* is much in doubt. In cases of pyelitis accompanying calculus, infection from below being excluded, there seems to be no question that they are offending agents. The same may be said of the bladder. Other conditions become predisposing causes, as phosphaturia. In these cases I am of the opinion the bacilli find their way by migration from the rectum. With the exhaustive research and valuable literature that has appeared in the last few years in relation to genito-urinary tuberculosis, it is quite unnecessary to refer to this subject. A form of microorganism most frequently found in the urine, the origin of which is obscure, but the cause easily traceable, may be described as (*a*) spherobacteria or micrococci; (*b*) microbacteria; (*c*) desmobacteria. (See fission fungi, page 17.)

Whether these germs *per se* can produce inflammation is a question yet unanswered; but that they can produce and maintain a congestion is well known. A congestion

is fertile soil for pyogenic bacteria and as the colon bacilli are found in nearly all of these cases, it is yet unfair to say the first named are the sole cause of the inflammatory trouble.

Involvement of the genito-urinary tract from without needs no description. Omitting the gonococci as a cause when infection occurs, please charge yourself with its production. Still this does occur every day, and how? The abdominal surgeon will scrub both patient and himself until the epidermis is removed, the obstetrician his hands until the same occurs, yet every day catheters, sounds, bougies and cutting instruments are used in the urethra and bladder without the least sign of cleansing of the field, except possibly the parts external. Again, we must look at this in a different light, for where catheters, sound and urethral or bladder instruments are necessary, trouble has and does exist. This trouble is the result of inflammation: inflammation is due to germs, and these can be and are carried by instruments; and, lastly, the irritation produced by instrumentation makes a good soil for germ culture. I will grant the fact that it is seldom a cystitis is produced by the passage of a sound or catheter, but one such, caused by one of these instruments will give the producer and incidentally the patient something to think of.

One of the most frequently used remedies for the cure of a chronic gonorrhea is the sound, but why invariably a failure? Because it is not used in the proper time and,

furthermore, it is passed through a canal filled with pyogenic cocci and no precaution is used to allay the irritation produced in its passage.

A urethrotome or cystoscope is boiled or otherwise sterilized until a culture could not be obtained, but these same instruments cannot help but become infected before they have traveled one inch inside the meatus. There are but two or three conditions where a urinary catheter is necessary: (1) in the female; (2) prostatitis or hypertrophy with obstruction, or where there is no obstruction, but we wish to ascertain the amount of residual urine; (3) when we wish the patient to thoroughly empty the bladder daily.

Summing up the foregoing thoughts, but one conclusion is reached:

(1) Abandon the catheter forever, except in conditions heretofore mentioned. (2) Precede the sound or any instrument that is to traverse the urethra by an antiseptic solution, nothing being better than formaldehyde. (3) Following the passage of an instrument always fill the bladder with an antiseptic astringent, allowing the patient to immediately pass the same. This will allay the irritation produced.

Irrigation of the urethra or bladder, I am pretty safe to say, was used in the days of John Hunter, and now the apparatuses for its performance are almost as numerous as genito-urinary surgeons, for no one would consider himself such unless he had put upon the mar-

ket such a contrivance. It will be unnecessary to consider the apparatuses for urethral cleansing further than to say, in the hands of their inventor, they will fulfill their calling successfully. For the inexperienced much practice is necessary and while this is being attained both patient and surgeon must suffer. One with epididymitis, cystitis, soiling clothing, and the like; the other discolored hands and an occasional douching, due to splattering of the fluid. Clumsy wall decorations are necessary and there is always more or less breakage; lastly, most are expensive.

FIG. 2



Ultzmann syringe, with author's attachment.

The apparatus I propose to advocate for this work is a syringe (capacity, 6 oz. Fig. 2), with a long nozzle, having attached to it a cup-shaped shield, the concavity looking outward. With it there can be no soiling of the clothing or hands: the hand controlling the piston can measure the resistance of the urethra and also that of the bladder. (Cases of tubercular cystitis, where to me this one point--bladder capacity--is the most important symptom of that disease.)

The anterior urethra is easily cleansed: every rugæ of

the mucous membrane being distended, thus allowing the solution to come in contact with the whole surface, The syringe is inexpensive, can be easily handled and is made positively sterile in half a minute.

Conscientiously, I cannot recommend internal medication for the destruction of bacteria developing along the genito-urinary tract; furthermore, urinary antiseptics have been over-estimated, except in tubercular conditions, where creosote or its derivatives will to a certain extent prevent the growth of these specific bacteria. To be sure, drugs recommended for this purpose, when placed in freshly passed urine, will keep it for a longer time without their development than if no drug was used, but the same drug passing through the system, meeting as it does the different chemical substances, to my thinking, are so changed that when it reaches the urine the power of bacterial destruction is destroyed. Bacteriuria has a definite cause; discover and remove this and these germs will disappear from the urine. Of the numerous cases which I have been called to operate upon for retention, extravasation and the like, with but an hour's notice my results have been just as good as though these patients had been medicated for three or four days previously in trying to obtain an impossibility. Remember it is just as possible to have an antiseptic operation field as it for the abdominal surgeon to have the same.

Chapter 12 is extracts from a paper read before the Surgical Section, Buffalo Academy of Medicine, March 1899 and appeared in the Buffalo Med. Journal.

The following history will show the value of the preliminary wash: *L. L. aet. 68 W*, gonorrhea several times in younger days. About 25 years ago first noticed that urine was coming with difficulty and finally retention developed, tried to catheterize himself, breaking instrument (rubber) in canal; operation was necessary for removal. Following this stricture was dilated but again contracted, and about 10 years ago necessitated dilation, this being immediately followed by a chill, lasting 4 or 5 hours. Urethratomy (external) was performed next day, and as before was followed by a chill. In the following years, up to August 31st, 1900, he was cut 4 times and dilated times innumerable, each seance being followed by a severe chill. At this time the patient consulted the author, complaining of being only able to pass urine in drops. Examination showed a filiform stricture in the deep urethra, which was very irritable. Before attempting dilatation the patient, although a toughened old tar, exhibited much fever, which, upon questioning for a cause therefor, brought out the fact that in the past 10 or 12 years he had never had a sound or instrument used in his canal that was not followed by a chill lasting from 4 to 6 hours, and he dreaded the after effects of the instrument to be passed. I assured him there would be no chill this time and the canal was thoroughly flushed with formaldehyde solution (1 to 1500), after which a filiform was passed and a No. 12 F tunneled sound (see treatment of stricture below 20 F) made to override

it. After innumerable visits, none of which was followed by the least disturbance, it was apparent that, owing to the dense cicatritial tissue (due to frequent operations) dilatation above 15 F was out of the question and operation was again advised. The patient did not return until contraction had taken place to an extent that urine was voided only in drops. On January 12th, 1901, external urethrotomy (30 F) was performed, after thoroughly flushing the canal, as previously mentioned. On the eighth day a No. 30 F sound was passed and the house surgeon instructed to wash the bladder daily with a silver solution (see argentic solutions for chronic urethritis). As he did not have an Ultzmann syringe a sterilized catheter was passed, but without any preliminary flushing. In a very short time a severe chill followed, lasting 2 1-2 hours. Since that time at least a dozen sounds have been passed and at no time was there any indication of rigor. Rigors following urethral instrumentation is well known to be due to other than sepsis, and in this case, occurring as they did within two hours after treatment, leads one to think that a nervous phenomena played an important part in their production. Yet, nevertheless, it must be taken into consideration that this patient had a marked pyelitis, with a urine containing much albumin, and that every seance was accompanied by more or less blood, denoting some traumatism at the strictured portion of the urethra, but, when antiseptic flushing preceded a sound, there was no constitu-

EXPLANATION, PLATE III.

Staphylococci, in and around the pus cells, also within cell wall of the round epithelial cell.

Pus cells---Some have apparently two, while others have three and even four nuclei.

It is now taught that a pus cell is a sphere having but a single nucleus, this being very irregular in shape and when brought out by acetic acid, or staining, it is the position the cell occupies that gives it the appearance of having several nuclei.

Caudate or spindle shaped epithelium.

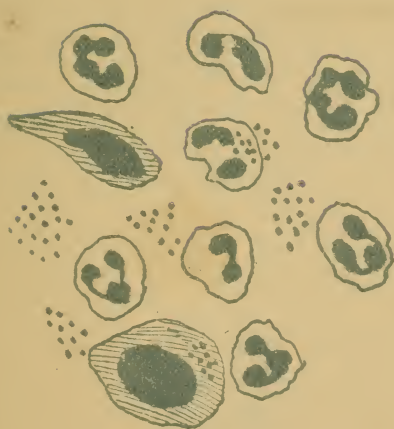
Round epithelium.

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The accompanying plate is an exact reproduction from a case of the author's with the camera lucida, Spencer 1-12th oil immersion lens and methylene blue as the stain.

PLATE III.



tional disturbance. In this case the prostate was markedly large, practically caused by the inflammation due to the obstruction, but hypertrophy was much in evidence.

The condition was explained to the patient, he giving us liberty to remove the gland if it was thought anp benefit would result therefrom. After opening the bladder and careful examination by Dr. J. F. Meyer and the author it was concluded with the existing bladder condition (chronic interstitially inflamed), and taking into consideration that the patient had pyelitis, with at least 20 % of albumin in the urine, prostatectomy was contra-indicated, as death would surely follow. Excision of the stricture was to be attempted, but owing to the previous operations the cicatritial tissue was so dense and encroached upon the surrounding parts to such an extent that removal was out of the question.



CHAPTER XIII.

CHRONIC SPECIFIC URETHRITIS

HISTORY.

Although the main symptom of chronic urethritis is much in evidence at all times, success in treatment cannot be hoped for unless the most searching enquiry is made and every portion of the genital anatomy examined at the first visit, excepting the urethra, which should receive no attention until the inflammatory action has almost if not entirely subsided. Urethral contraction, even well developed stricture, may be present, but if irritation is avoided and appropriate treatment carried out the urine at a certain time will show their presence. Possibly one of the first requirements is a careful observation of the patient's general condition: is he well nourished, does there seem to be any power of resistance, does the facial expression denote a constant worry over the condition present? In fact, does the patient's condition show that the system is capable of doing its part towards hastening resolution in the membrane. The following questions will give some clue as to the line of inquiry that should be followed:

Discharge, morning drop or all day.

Character of.

Date of appearance.

EXPLANATION OF HISTORY CHART.

For any of my readers who may wish to adopt a cut of this or other portions of the body, with or without the annexed questions, it may be of advantage to state that if red ink is used for filling in, or the form printed in red, using black ink, much valuable time is saved when wishing to consult for reference. If using a similiar diagram the trouble can be marked as follows; a line through the secreting portion of the kidney and marked A. P., C. P., Inter. or Diffuse, indicates at a glance, Acute Parenchymatous, Chronic Par., Interstitial or Diffuse nephritis.

A line through the pelvis and marked R. or L., would indicate Pyelitis, the same involving the right or left kidney as the case may be. The Bladder, Prostate, Urethra, Testicles, etc., can be marked in the same way.

In case of stricture, their location and size can be so indicated that no mistake is admissible even in years afterwards.

NAME.....

STREET.....

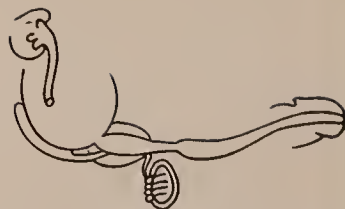
PREVIOUS HIST.

PAGE I BOOK

PLACE.....

AGE.....S. M. W.

OCCUPATION.....



Discharge.....	STRICTURE.....	.....Varic.....Hydroc.	Gumma.....Tubrl.....	Amorphous phos., urates
Consistency.....	Penile.....Deep.....	Stone in.....oper.....	Head symp.....	Albumin.....Sugar.....
Since.....	Dilated in.....up to.....	.....Test.....Nodul. even	Treated.....	Urea....grs. Indic.....
Incub.....GONOCOCCI.....	Cut.....times ..Intr Extr	Cord.....pros..nodulr.	Condl.....Pain in.....	Crys. phos. oxal. uric acid
Epidid.....Epid-orc.....	Fistula.....Papillo.....	ERECTIONS.....	Condition now.....	Hyal.....Epithel.....
Perinaeum.....swollen	Retention...times last,....	Deformities.....	Chancr'ds.....phag.....	Gran.....Blood...Waxy...
Prostate.....	Venereal warts.....	.....Night emiss.....	Bubo.....Oper.....	Mucus cylinders.....
Vesicles.....	PROST.....lobe.....	.....Escapes in day	URINE.....day.....nts.	Epith.Blad.....Uretrl.....
Cystitis.....	Urine.....in starting	Disc.with stool...urine...	Desire to pass.....	Pelvic.....post. ure.....
Posterior urethra.....	Passes.....straining	Ejac.....pain with	Pain, before, during, after	Tubules.....
Prepuce.....	Rectal prolapse.....	...blood.....mastu'btd	Blood, before, with, after	T. B.....Other bac.....
Coitus during inf'ct'n.....	1st retention.....for.....	Worries.....Nervous	Irritation at meatus, penile	Spermatozoa.....
Liquor.....used	...times since, avg.dur....	Sound gives...pain in p.u.	deep, perinaeum, prostate	VULVA.....Ureth....pus
Previous attacks.....	Blood.....	Tun.Vag.....withdr'l.....	Amount.....oz. Colr.....	Barth. glands.....
1st.....lasted.....	Anemic.....Brights.....	CHANCER.....locat.....	Sp.G.....Reac.....	Vagina.....car'nkl.....
2nd.....lasted.....	Diabetes.....Tuberc.....	Incub.....Aden's.....	Opq.....pus,mucus, blood	Cervix.....
last.....lasted.....	Pain in.....loin,.....groin	Secon.....1st ap'rd.....	First.....	R. Ovary.....Tube.....
Epid'mts with.....	extending into.....	now.....Throt.....	Second.....	L. Ovary.....Tube.....
Cystitis with.....	...Kidney painful on press	Mouth.....Hair.....Eye.....	Shreds.....pros.plugs.....	Leucorrhea.....

Incubation.

Urines, days, nights. Was blood ever present.

Desire necessitates (quick response or can wait.)

Pain, before, during or after.

Irritation, at meatus, penile, deep or prostatic urethra.

Epididymitis, epididymo-orchitis.

Perinæum, swollen.

Prostate, vesicles, cystitis, prepuce, gonococci.

Coitus since infection, liquor during present condition.

Previous attacks, first lasted, second lasted, etc.

Epididymitis with, cystitis with, strictures (treated for by dilatation or cutting.)

Retention of urine, fistulæ, present condition of epididymis as to nodules, etc., history of syphilis, chancroids, herpes, and in fact anything that may aid in the formation of an opinion valuable to not only the patient but yourself.

The urine should receive careful attention, not only chemically but microscopically. Much depends upon the appearance of this liquid, and the physician is careless who does not examine it by the two glass test whenever dealing with a case of urethral inflammation. (See clinical indications.)

The patient's general condition must be taken into consideration and careful enquiry made as to tuberculosis, rheumatism, gout, etc. (See fac-simile page from author's history book.

CHAPTER XIV.

CHRONIC SPECIFIC URETHRITIS

THE TREATMENT OF CHRONIC GONORRHEA.

Older members of the profession who recall the teachings and literature of their younger days must be somewhat surprised to see to what extent this subject receives attention in works of today. Bryant's Surgery, written in 1876, refers to gleet in two lines, and a work published in 1880 on venereal diseases devotes eight lines to chronic gonorrhea or gleet. During the last five years there certainly has been a deluge of works upon genito-urinary diseases, all of which give marked attention to the subject under consideration. Yet it is a daily occurrence to see patients who have been treated by these very latest methods continue to have the same morning drop, or even have the condition aggravated. It seems there should be some excuse for such a condition of affairs. A solution worthy of careful consideration is: the part is irritated rather than soothed. Most writers advise a searching of the canal at once for stricture or contractions which may be the cause of the trouble. Without hesitancy it may be stated that this one procedure is the great cause of continuing the smouldering fire. Various instruments are on the market and highly extolled as a mode of ridding urethral

follicles of their contained secretion, or for squeezing out sub-mucous inflammatory deposits. To use these a rubber covering is necessary so that the blades may not catch the mucous membrane. Is there a doubt that this rubber, no matter how well lubricated can pass over a most delicate membrane, already inflamed, without causing more irritation? Instruments of this character should not be used in the urethra no matter what condition the membrane is in. Careful consideration should be given to the facts already stated, for progressive resolution should not be considered at a standstill until after the eighth week, and nothing should be done in the way of office treatment until that time has elapsed. The old idea held by the laity that a gonorrhea was not as bad as a cold is fast dying out, yet a goodly number of patients present themselves who have endeavored to cure themselves by zinc injections, bal. copabia, and all sorts of patent nostrums. Still a greater number might be considered second handed for the reason that they have been under the care of one or more physicians before consulting the readers. When the latter is the case it may be safely assumed that the patient has been submitted to all sorts of instrumentation, leaving us to deal with a membrane irritated to the highest degree. In a condition of this description, *and it will not be amiss to make it a rule in every case that has not been under your care from the outset, to use the most soothing, non-irritating means at your command for at least ten days to two weeks.*

This is best accomplished by an astringent injection, having the patient use the same at least three times a day. (See fig. 1 and foot note.) The following has given good results :

R ^x Zinc Sulfate,	grs. 24
Alum, powdered,	grs. 30
Aqua, ad.	ozs. 8

Sig. Use a syringe full three times a day.

In old cases, where the membrane is in a state of general inflammatory thickening, this at times involving its entire thickness ; better results may follow the addition of some depleting drug, such as Ichthyol. This may be added to the above in a proportion of about one drop to each syringe full of injection, or say 25 drops in an 8 ounce mixture.

It will be surprising to see the result obtained in most cases from such an injection. But much opposition will at times be met from the patient who will tell you he has been injected for anywhere from six or eight weeks to as many months. This must not interfere with the course which you should follow ; he should be candidly told that with but few exceptions (tubercular or cachectic) all these conditions are curable and there is no exception, if treatment is carried out as you advise.

A very careful observation of every case is necessary and where such conditions as *anemia, syphilis, tuberculosis, uric acid or other cacexias* exist appropriate measures

must be taken. It must be remembered that every case is a law unto itself, and no routine treatment will cure all. If epididymitis is present all local measures to the membrane must be stopped until the pain in the affected part is entirely absent. When there is prostatic involvement, excepting in acute parenchymatous, treatment may be carried along at the same time as that of the urethra. Vesiculitis, if chronic, should also receive attention in connection with that of the urethra. After the twelfth or fourteenth day of self-injection (by the patient), and providing that the advised eight weeks have elapsed since infection, local medication may be commenced and should be carried out daily, excepting under certain conditions to be mentioned later. The urine must be passed in two glasses at each visit (at least two ounces in the first) and carefully examined visually or otherwise to note progress of condition. It must be remembered that as general inflammation subsides and becomes localized only at certain spots the urine will become more transparent until practically nothing but shreds will appear in the first glass, the second being almost if not perfectly clear. (The inflammatory exudate is the only substance under consideration, phosphates or semen not being considered.) **THE BEST SIGN OF IMPROVEMENT AS TO URETHRAL INFLAMMATION IS THE APPEARANCE OF SHREDS IN THE URINE.**

Knowing now that the case has not been irritated for at least 12 or 14 days we may expect to find about the

following condition: Slight discharge all day, or, possibly, only a morning drop, no objective symptom whatever, the first urine opaque, ranging in degree where it may be almost possible to read fine print when held behind the glass to one where it is impossible to see through the fluid. The second glass will usually be of about the same character, but of a lesser degree. Occasionally there may be no evidence of discharge, but both samples of urine may be almost exactly of the same opacity, the first showing shreds. Such a condition clearly indicates that the inflammation has entirely subsided in the anterior urethra, excepting at one or more small spots, and the posterior urethra is the seat of the trouble. Still other cases are met where there may be little or no discharge, yet the urine will be opaque to a degree far beyond the evidences at the meatus. Thus the first appears only slightly opaque, where the second will look much like milk, and there may even appear at the meatus one or several drops of pure pus (these of course after the urine has ceased to flow.) This condition is the most positive evidence of vesicular involvement. *As has already been stated, and it should be accepted as a fact, at this time the posterior urethra is always involved and therefore should receive the same attention as that of the anterior urethra.* Undoubtedly the quickest and least irritating way of applying solutions to the canal, either anterior or posterior, to the compressor muscle, is with the Ultzmann syringe, having the author's attachment,

(see cut), no catheter being used. If the patient is assured that there will be little or no pain, and as pressure is exerted upon the compressor muscle, he will try to urinate immediately following this with a suction motion in the canal, the fluid will readily pass the muscle and they can feel it entering the bladder.

The best mode of using the syringe is to grasp the glans between the thumb and the first and second finger of the left hand, with the right thumb acting as the propelling power, push the piston forward depositing about one half ounce of the fluid in the urethra. This should be let out at once by relaxing the grip on the glans, and the same procedure repeated two or three times. The second finger of the left hand will act as a meter in measuring the amount of dilatibility of the canal, this always filling to its utmost capacity before the compressor opens.

In practicing this little procedure it is evident that the anterior urethra is free of all debris, a condition that is absolutely necessary not only before allowing solutions to enter the posterior urethra, but any instrumentation.



EXPLANATION, PLATE IV.

Gonococci situated in their characteristic grouping in and around the pus cells.

It will be noted that a single coccus resembles a coffee bean, but they are usually found in pairs and may occupy any portion of the field, intercellular, extracellular, and occasionally may be seen upon epithelial cells.

The following is diagnostic of these cocci, but where great accuracy is desired, as in a medico-legal case, the Gram's stain and culture must be used :

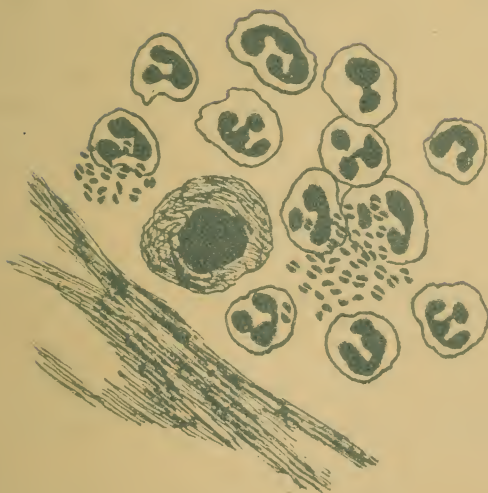
1. Dipolococci, about 1 millimeter in size.
 2. Occurring in colonies, usually intracellular.
 3. Characteristic history with symptoms of the disease.
- Mucus, round epithelium, pus cells.

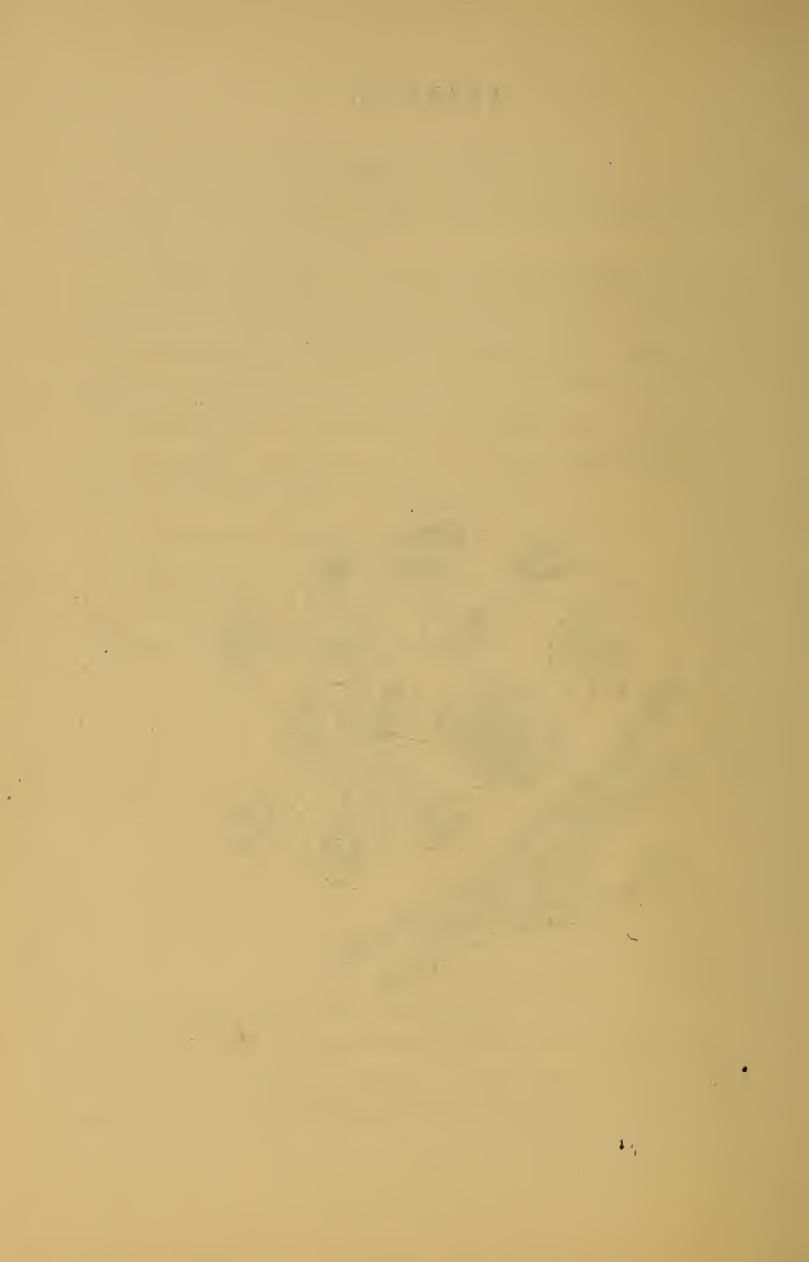
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The accompanying plate is an exact reproduction from a case of the author's with the camera lucida, Spencer 1-12th oil immersion lens and methylene blue as the stain.

PLATE IV.





CHAPTER XV.

CHRONIC SPECIFIC URETHRITIS

THE TREATMENT OF CHRONIC GONORRHEA, (CONTINUED.)

Although one syringefull of the solution is all that is necessary for each treatment, if time permits, two may be used with possible increased value. The solutions to be used may be kept in stock, should be used warm, and THE SILVER SOL. MUST BE MADE WITH DISTILLED WATER. A zinc. sol. can be made as follows and used as dilution 1, 2, 3:

Stock sol. Zinc. sulfate, grs. 540
 Alum, pow'd grs. 710
 Aquæ drs. 300

M, and keep in tightly corked bottle in dark place.

Dilution 1---Of solution	2 drs.	water 6 ozs
Dilution 2---Of solution	3 drs.	water 6 ozs
Dilution 3---Of solution	6 drs.	water 6 ozs

Stock solution for silver injections :

R Argentum nitrate, grs. 96
Aquæ dist. oz. 1

M. 20 % sol. (must be kept in black bottle.)

L. of C.

Drops of above	Aqua dist. ozs	Equals
2	12	1-14000
2	10	1-12000
2	8	1-10000
2	6 1-2	1- 8000
3	6 1-2	1- 6000
3	5 1-2	1- 5000
4	6 1-2	1- 4000
5	6	1- 3000
6	6 1-2	1- 2000
14	6 1-2	1- 1000
18	6	1- 800
21	6	1- 500

OFFICE TREATMENT.

As only practical experience with the urine for a long time can tell when the silver solutions are called for in the commencement of treatment, it is always best to start with the zinc and alum, in every case continuing the same for at least two or three days. (Fig. 2.) Dilution No. 1 first day, No. 2 the second, and No. 3 the third, if thought necessary. At the end of the second or third day with the zinc alum, silver should be substituted, commencing with 1-14000, increasing according to table until there is no discharge and the urine becomes clear, excepting the shreds in the first glass, which will not disappear by injection, but must receive attention from the sound. There is no telling when

discharge may cease and the urine clear, but from a large number of cases the author has found this to occur when about 1-5 or 6000 is reached. If the above condition is attained, about this time it is well to let the patient rest untreated for say three or four days, when, if there is no return of the discharge, (the urine may show a slight increase in inflammation) the cause should be sought for and removed if possible. When the discharge does not stop at about 1 to 5000 the irrigations must be continued until such a time as it discontinues and the urine becomes clear, excepting possibly the shreds indicating localized inflammatory spots. A RULE THAT HOLDS GOOD IN ALMOST EVERY CASE IS: NEVER PASS ANY INSTRUMENT INTO THE URETHRA UNTIL THE URINE IS ALMOST IF NOT ENTIRELY CLEAR. The causes of continued trouble in the urethra will be mentioned and described in order of frequency, as near as possible.

EARLY AND PERSISTENT INTERFERENCE.

Robert Taylor, in his work on diseases of the sexual organs, when speaking of the treatment of posterior urethritis, and this should refer to inflammations of the anterior urethra, says: "The duration of the urethritis has an important bearing upon its treatment." This is a very important statement, but furthermore, *when a urethritis becomes chronic, and especially posterior, the older the condition (urethral inflammation) the quicker the cure.* As

heretofore mentioned, there is no doubt that the early and persistent interference is the one, and in most cases the only cause, of continued inflammation of the urethra. If this is kept continually before one's mind success will be more often the result. It must therefore be remembered that until progressive resolution has entirely ceased no interference should be undertaken to hurry a cure by instruments, office injections or otherwise. This demonstrates one fact : if the first injection seems to aggravate the condition the patient must be placed upon the hand syringe until such a time as office treatment may be commenced and rapid results follow. Above all things, instrumentation of any and all kinds must be dispensed with until the urine shows that the general inflammation is subsiding and becoming localized at certain spots along the canal. When this condition is reached the urine and the history of the case will give much information as to the cause of the continuation of the trouble. One thing is evident, strictures as a rule grow very slowly and unless there has been a previous infection years ago, and of long duration, or the present condition has extended over many months, well marked stricture need not be thought of. Where the above may be present, as is evidenced by the history, the urine will generally show such to be the fact. If there are well formed shreds stricture may be suspected and should be looked for at once. On the other hand, if there is no previous history of infection and the present condi-

tion is only of a few months' (3 or 4) duration, the small (lighter in weight) stringy substance indicates that at certain points in the canal there are spots of chronic inflammation (possibly extending into the submucous tissue and described by some authors as strictures of large calibre) which are causing more or less obstruction to the free passage of the urine and thus acting as a cause in keeping up the urethritis. Where stricture is found the condition must be treated according to the rules laid down for the care of this complication. No stricture being found, particular attention must be directed to the promotion of these inflammatory patches.

One other truth is evident at times: in some cases patients are over-treated. This may be administered either internally in the shape of irritating drugs, or externally with hand injections (by the patient) or at the office by instruments, irrigations, etc., Where continued and appropriate measures seem only to keep the condition at a standstill, in fact may render it slightly worse; good results often follow a secession of any and all medication, at least for a time (say from 4 to 8 weeks) when, if resolution is not complete, further treatment may be tried.

THICKENED MEMBRANE.

If the meatus is small it must be cut so as to admit at least a No. 30 F. sound, which should be passed un-

der the same antiseptic precaution as though for the dilation of stricture, immediately following it with a silver solution, but one point stronger than the one used previous to the examination for the cause. Should this procedure seem to aggravate the condition it is well to discontinue a repetition of the same, but the injections of silver should be continued until the urine shows the condition to be improved over the former stop. If the urine shows great improvement as to clearness, about the fourth to sixth day, the same procedure should be repeated, increasing the silver in strength. At this time it may be well to give the canal a rest for two or three weeks, allowing nature to assist if possible in the absorption of any exudate that may be left behind. *One should keep in mind at all times what constitutes a cure, and the case must not be dropped until that end is attained.* If, after the lapse of two or three weeks, the urine does not show the membrane to be in a condition as already described (see infection) sound treatment should be resumed and continued until such a time as it is safe to say there is no danger of infection. The much vaunted endoscope which conveys a light into the canal by aid of an electric lamp is absolutely of no value in this condition; in fact it does more harm than good and should not be used.

GRANULATIONS.

• True granulation tissue is a condition that is not found very often; yet occasionally an obstinate case

will show such to be the cause of continued trouble. Symptoms are often so well marked that one can with fair certainty name the cause, or if the electro-endoscope is at hand this will not only quickly decide the case but may be used to advantage for treatment. Their location must be positively determined and silver used as the destructive agent. The canal should be thoroughly flushed with an antiseptic solution before placing the tube therein and not over a TWO PER CENT. SOLUTION used for the first application. This can be repeated about every four to seven days, according to the amount of irritation produced, the silver being increased up to TEN PER CENT. if necessary. Where the electric light is not available the sound will accomplish the same purpose, only more slowly. The canal must be previously flushed and full-sized instrument used, every fourth day being followed by irrigation of silver in strength as for chronic inflammation of the whole membrane. Powders should never be used as they only tend to stimulate the already granulating surface.



CHAPTER XVI.

CHRONIC SPECIFIC URETHRITIS

THE TREATMENT OF CHRONIC GONORRHEA, (CONTINUED.)

STRICTURE.

When stricture is positively located the canal should be restored to its normal calibre as soon as possible. In a great majority of cases this can be accomplished by graduated sounds, using all antiseptic precaution (see urinary infection page 77) and following the passage of these instruments by an astringent (see silver injection page 59). It will be rarely found that cutting instruments are necessary, and especially is this true in that large percentage of strictures that are located in the deep urethra. As to the amount of dilation at each visit, every case should be treated on its own merits, noting carefully the irritation produced the previous time. In recent conditions an increase of 3 to 5 numbers of the French scale, up to 30, will be followed by little or no inconveniences to the patient, whereas in an old tough stricture 2 or 3 numbers may be the maximum. Stricture should be considered almost like a rubber band, i. e., if it is not kept at the highest degree of dilation it will very soon retrace its steps and in time assume its

former condition ; in other words, dilation at the maximum (average 30) should be continued until there is a complete absorption of the cicatricial tissue. When such a condition is attained is a much disputed question, some going so far as to say that stricture is never curable, excepting possibly by cutting. It is possible to say, almost with a certainty, when there is the least sign of new tissue present, when all cicatricial new formation has been entirely absorbed and stricture entirely gone, and in months or years afterwards to positively decide as to whether there is any reaction going on. The least pathological contraction is accompanied by new tissue formation, behind which there is an inflammatory zone, varying in degree according to the amount of obstruction present. Stretching or dilating of this tissue is accompanied by an exudation of a sort of hyaline material, both in proportion to the amount of dilation and also to the density of the contraction present. The exudation taking place at the site of contraction is deposited either directly in front or behind the latter where it comes in contact with the already described inflammatory zone, thus intermingling with any pus that may have remained after the primary cleansing of the canal, or cells which may have exuded between the antiseptic wash and the time of dilation. At the sight of inflammatory changes epithelium is constantly being thrown off and this will also be found. Therefore a positive indication of urethral contraction, due to new tissue formation, and

which has been stretched, is characterized by a small, bloody-like appearing string which the microscope shows to be composed of blood, pus and epithelial cells, entwined in a hyaline structural body. As dilation is continued, new tissue formation becoming less, this bloody string becomes smaller, disappearing entirely when the canal has reached its normal condition and contractions have entirely disappeared. This blood-like shred must not be confused with clots or even stringy clot formations, so often seen after the passage of a sound. Blood may appear in the washings from forcible stretching, with possibly rupture of the meatus, fossa-navicularis, squeezing of old inflammatory spots, or the use of a sound too large for the normal urethra. It is not necessary in searching for a stricture to use an instrument over 20 to 24 F., for with the penis on the stretch the walls of the urethra will be brought so closely into apposition that either of the bougies mentioned will detect the least narrowing; but even though this is possible, the meatus and navicular valve must be large enough to admit a No. 30 F. sound. Where treatment must be commenced with a filiform two or three of these instruments should be made to pass the obstruction if possible, allowing them to remain *in situ* until the spasm which is always produced passes off and they can be removed without force. No unaided steel instrument should be passed through a urethra until a calibre of at least 18 or 20 F. is reached. Various authors advise

the use of rubber sounds after the filiform and until the steel instruments can be used of the aforementioned sizes. Rubber instruments of any kind or make are very unsatisfactory, for the moment a stricture is touched it takes on a spasmodic condition (especially is this so of old ones) and even though the point of the instrument may become engaged it will be held so tightly that forcing it through is almost if not impossible in every case unless the sound (rubber) be of large size. This is obviated, the stricture gradually dilated and no possible danger of a false opening being made if the filiform is used as a guide and a tunneled catheter used as a sound until a calibre of 20 F. is reached. (Tunneled instruments should be at hand ranging in size from 5 F. to 20 F.) In using this procedure great care should be exercised lest the filiform be cut in two just anterior to the contraction. The physiological changes in dilated stricture should always be borne in mind, as it is the one great aid in telling when instrumentation should be resumed. After the passage of an instrument through an urethral stricture the following changes take place at about the times mentioned:

First 36 hours, mechanical dilation.

Next 48 to 50, physiological congestion, due to irritation produced.

Next 38 to 60, absorption, until the previous dilation is reached, this being at about the beginning of the 6th or 7th day, when recontraction commences. With a rest

of say 24 hours, sound treatment should again be resumed and carried out as before, using careful judgment as to dilation as referred to elsewhere. After No. 30 F. (average calibre of the normal urethra) is reached dilations at weekly intervals should be continued until there is an entire disappearance of the bloody string heretofore alluded to, this necessitating 5 to 8 visits. Occasionally the bloody string insists upon reappearing, even after 8 successive dilations to 30 F. In that case we are in all probability dealing with a canal having a normal calibre of over 30 F., therefore sounds should be increased in size accordingly, when it will be generally found that 31 F. or 32 F. will produce the desired result (absence of the bloody shred). Not only should there be a disappearance of the bloody shred, but the morning urine must be clear of any and all debris. This latter is found to be the case long before the former is attained, and furthermore it may be conscientiously stated that the inflamed membranes (chronic specific urithritis) when complicated by stricture assume a normal condition more quickly than when this complication is absent.

Certain strictures call for division at once, but it is unwise to even think of division until the urine is almost if not entirely clear, excepting possibly the shreds. Such conditions are: resilient, tough, fibrous, traumatic and where great irritation, some hemorrhage or chill always follows the passage of a sound. In all these cases the

perineum should be opened, as it facilitates drainage and often prevents trouble. As alluded to elsewhere, stricture tissue is very irritable and will spasmodically contract at the least interference or touch, but the lumen of the canal is never completely closed. Therefore where repeated attempts fail to effect an entrance cocaine 5 % locally or a general anesthetic will so relax any spasmodic action that one or two of these instruments can be passed through. When it is possible to pass a filiform or other instrument it is found at times that its full movement up or down is interfered with to such an extent that severe pain may be produced in attempting its withdrawal. In such a condition it is always well to leave the instrument *in situ* for 10 to 25 minutes, or until spasmodic action has passed away. When using filiforms if this rule is followed it will often be found that when one instrument is passed with much difficulty two or three, or even a tunneled sound can be slipped by quite easily. The fact should not be lost sight of that the opening in stricture is rarely in the center of the canal, and where there are two or more the opening through the first may be at the roof, where in the second it may be on the floor. For this reason the exploring point of a filiform should be bent at an angle of about 45 degrees.

NAVICULAR VALVE, SMALL MEATUS.

When this valve (situated 1-4 of an inch behind the

meatus) is contracted so that any obstruction is offered to a No. 30 F. bulb it must be cut. If the meatus is small it can be divided at the same time, but neither of these structures should ever be enlarged beyond No. 30 of the French scale. Division should always be made along the floor and either to one side or not quite up to the artery of the frenum.

ANEMIA AND CONSTITUTIONAL CONDITIONS

These two conditions are usually associated, one depending upon the other. Yet the first (anemia) may be present, due entirely to local conditions, such as the administration of copaiba or other drugs, plus the long continued suppuration. As copabia, cubebs, etc., are only of value in the second stage of gonorrhea these must be discontinued after that period. The dormant, gastro-intestinal absorbents should be revived before ordering hematics. *Tr. nux vomica* in 15 drop doses three times daily, in water, 30 minutes before food, gives most gratifying results. (Strychinine will not answer as a substitute.) After its use for ten days or so iron should be given in 12 to 15 drop doses, in water, or it may be combined with *nux vomica* if thought necessary. A most excellent prescription, and one that has proven very efficacious not only in the conditions just mentioned but in any and all cases where iron and nerve tonics are called for, is as follows :

R̄ Ferri pyrophosphate, grs. 50
Tr. nux vomica, drs. 5
Fl. ex. erythroxyton,* ozs. 1
Elixer lactopeptine ad. ozs. 4

M. Sig. One teaspoonful in water t i d, after food.

Constitutional conditions, as TUBERCULOSIS, CANCER, BRIGHT'S DISEASE, DIABETES AND SYPHILIS, should be combatted by drugs appropriate to these diseases, in connection with all hygienic, dietary and other means known to be of advantage. Tubercular subjects should be advised to seek a change of climate, preferably that of Colorado, New Mexico, or Northern Texas, where they should reside out of doors as much as possible, of course avoiding such exercise as horseback riding or bicycling if the prostate or other adjacent organs are involved. One of the best drugs known is creasote valerinate which must be given continuously in from 3 to 10 drop doses three times a day. Except in the anemic or certain conditions, but little result will be obtained from drugs in Bright's disease. Here diet is all important. (See diet for nephritis.) The same may be said of diabetes, excepting possibly that the main articles of food or drink absolutely contraindicated are those containing sugar or starches. Syphilis should receive attention according to the condition and stage present.

* Erythorxyton should not be used for over two continuous weeks, owing to the fact that an appetite might be formed for this drug.

CHAPTER XVII.

CHRONIC SPECIFIC URETHRITIS

THE TREATMENT OF CHRONIC GONORRHEA, (CONTINUED.)

LITHEMIA.

This condition must be combatted by dietic, hygienic and medicinal measures. All drugs that in any manner might interfere with the perfect assimilation of food, such as *copabia*, *cubebs*, *santalwood cil*, etc., must be stopped. Foods, vegetables and liquids known to be rich in substances which cause excesses of uric acid, oxalates, etc., such as red meat, (beefsteak and roast beef) shell fish (lobsters, clams, oysters, softshell crabs, etc.,) tomatoes, spinach, cucumbers, rhubarb, asparagus, and all malted liquors and high wines (it is inferred that the latter should not be used, lithemia or no) must also be avoided. In certain individuals tobacco has a tendency towards the production of phosphates, urates, etc., and when such is surmised to be a cause it should be discontinued or allowed only to a very limited amount. Exercise (not fatiguing) systematic bathing (Turkish or cabinet is very beneficial if not indulged in too often), and plenty of refreshing sleep is all important and should be insisted upon. All meals should be of a nutritious character and must be taken at regular intervals. When

rheumatism is present, or there is a rheumatic tendency, this should receive careful attention. When, from some previous condition, malassimilation is present, heroic measures are often called for. A prescription which has given the author the best of results is as follows :

R ^x Acid nitro-hydrochloric dil,	gtt. 15
Pepsin	gr. 2
Tr. nux vomica	gtt. 15
Aq. menth, pip.	ad. dr. 1

Sig. To be taken with water, after food, three times daily.

None of the many advised specifics for uric acid elimination can be advised as they all tend toward one end, a failure to produce the desired result. Possibly the best drug for this condition is lithia citrate, 10 grains in a glass of water three or four times a day.

PROSTATIC OR VESICULAR INVOLVEMENT.

Treatment of a chronically inflamed prostate (usually follicular variety in young subjects, where there has not been a previous acute parenchymatous condition,) must be carried out as carefully as that advised for inflammation of the urethra, i. e., all measures tending toward irritation must be avoided. Although the inflammation involves the numerous ducts and sinuses, possibly as far as the acini, it should be remembered that the over-

lying mucous membrane (posterior urethra) is also involved, and often to a greater extent than the latter. For this reason, urethral instrumentation should be avoided until the urine shows by its clearness that the membrane is either in a fairly normal condition or that the inflammation is at a standstill, due to some unknown cause. At this time stricture or contractions can be looked for and when found should receive attention at the same time as the prostate. The one aim of the surgeon must be to promote absorption of the inflammatory exudate, and this is best accomplished by sounds (full size at once or as soon as possible), local, urethral and rectal, and by the use of the psychrophore. While the urethral condition is under treatment, rectal and internal measures may be used as these in no way seem to act in causing irritation. Heat to the prostate is one of the best and most important measures to be advised, but it must be applied in the moist form, and for this reason the Winternitz rectal instrument will not be considered. The apparatus for the application of moisture to the prostate and vesicles, described some time ago by Dr. Guiteras of New York, seems to fulfill every requirement and can be advised for this work. At least one gallon of normal salt solution at a temperature of 115 F. must be used every night before going to bed. Following

The author has an instrument under construction whereby 4 to 6 fine jets of normal salt solution are thrown constantly against the prostate, keeping the rectum filled to a moderate extent and then passing out through one larger aperture, but owing to mislaid plans this has not been completed as yet.

this, and while the rectal temperature is still high, a suppository of ichthyol and belladonna should be placed above the internal sphincter where it will rest against the prostate. The following is a formula which has given me much benefit :

℞ Ichthyol	gtt. 30-40
Ex. belladonna	gr. 5
Ex. hyoscymus	gr. 15
Iodine	gr. 1

M. et ft. rectal suppositories No. 15.

Sig. Insert one before retiring.

Excepting under well defined conditions (see the treatment of stricture before the urine has become entirely clear) no internal instrumentation should be attempted until the urine shows by the absence of pus that inflammation has entirely disappeared, except at a few localized spots, such being evidenced by well defined shreds (indicating contractions) small, flake-like pieces, consisting of pus cells, epithelium and possibly a few cocci, (localized inflammatory areas) or commoa-like plugs forced from the prostatic sinuses either by the urinary stream or by contraction of the bladder and prostate in its effort to expel all the urine. At this time sound treatment must be commenced, each instrument being preceded by an antiseptic and followed by an astringent. The silver solutions which have been used for the general inflammatory condition may be continued here and

if no irritation seems to arise as they are increased in strength, these may be carried up to the thousand mark, or even 1 in 500. Where stricture is present it must be dilated, the canal being brought to a normal calibre as soon as possible, but sounds must not be used less than 5 to 6 days apart, on account of the irritation so often produced by these instruments.

Nervous symptoms accompanying chronic follicular prostatitis are at times distressing and very marked where the individual has a nervous tendency and the caput gallinaginis is involved. (See Firger's work on this subject.) Tonics must be given according to the conditions present, and at the same time some quieting drug for the nervous system. In my hands nothing has acted so well as Arsenauro, commencing with 5 drops in water three times daily, increasing one drop each day until fifteen or twenty is reached. As it is quite impossible to say when the prostate is in a normal condition (from follicular inflammation) by examination per rectum, the urine and symptoms must be depended upon as our only aid in saying when the condition is normal, or as nearly normal as it is possible to bring it. All sensations referable to the prostatic region should be absent and the urine must be free of comma-like plugs. As the author has never received any benefit from massage this procedure will not be mentioned. When such is attained there may yet be a suspicion of pus being present in the acini which may only appear upon accumulating sufficiently

to cause the gland to contract, thus expelling it into the posterior urethra, or it may be forced out at the time of sexual intercourse, recourse must be had to methods which will cause an expulsion of the prostatic secretion for examination.

This may be accomplished by advising intercourse, using a condom, examining the same for pus (suppurative involvement of the urethra must be absent) and microorganisms, or after urinating and thorough flushing of the canal the prostate can be manipulated per rectum, bringing forth the exuded material by either forcing a few drops of urine or again flushing the urethra, allowing the solution to pass through the posterior portion, catching it upon expulsion and examining it by use of centrifuge and microscope. After the passage of a sound and withdrawal it is often seen (formel-glycero, formaldehyde drops one, glycerin one ounce as the lubricant) that a small, whitish drop appears at the meatus. Although examination of this may throw some light on the desired question it cannot be regarded as very positive evidence, for the reason that the same process which takes place in the prostate (dilatation with a contraction and expulsion of contents) may occur in the urethral glands, and thus pus may be found. One other method may give favorable results, viz., previous injection of the anterior urethra with methylene blue sol., this being followed by any of the methods already alluded to. If the solution is retained in the anterior urethra, say for ten

minutes, anything in front of the compressor will be stained, when behind this muscle the reverse is the case. The only treatment of avail in this condition (follicular prostatitis) is the continued use of the moist heat, suppositories, sounds and internal irrigation by silver, taking great care not to aggravate the condition by too frequent use of the latter.

VESICULITIS.

The older this condition the quicker will resolution be established. When an acute, or even a subacute condition, rest, with quieting drugs, is all important. All forms of urethral medication must be stopped, the patient placed in bed and suppositories containing opium used for the relief of pain and discomfort until the inflammatory action has reached its acme and is on the decline. At this time the rectal douche becomes a very valuable adjunct, one gallon of salt solution being used at a temperature of 115 F. which should be followed by a suppository as in the treatment of chronic follicular prostatitis. (See formula, page 117 .) Urethral medication may now be resumed and carried out as before the vesicular involvement. Where the trouble is very chronic, possibly of a year or more standing, the index finger may be used to great advantage for emptying these sacs of their contents. In almost every case, at this time, it will be found that stripping is all that is necessary and that through emptying of the vesicles about every 48

hours for three or four times will be followed by complete resolution. As proof that there is an entire absence of pus the contents of the condom may be examined or the finger used as stated in chronic prostatic involvement.

A few words of warning in regard to this condition, which had such an important place in genito-urinary literature some time ago, may not be amiss. There is no doubt but that the seminal vesicles are involved more often than they are credited with the same, but to charge these sacs as being the seat of inflammation in every case of chronic gonorrhea that does not respond to medication is a great mistake. Furthermore, although at a certain time stripping is of great advantage and in reality the only possible mode of evacuating the contents (coitus eliminated), yet, nevertheless, when this procedure is practiced before every blood vessel is in a state of relaxation, due to chronicity, the finger or any mechanical device for forcing out their contents is damaging and will only prolong the existing condition. One of the most important aids in diagnosis of vesiculitis is a history of the case, but as these organs lie in such close proximity to the prostate and posterior urethra, and the symptoms are so nearly alike, great care should be exercised lest vesiculitis be diagnosed when posterior urethra or prostate is the parts involved.

CHAPTER XVIII.

CHRONIC SPECIFIC URETHRITIS

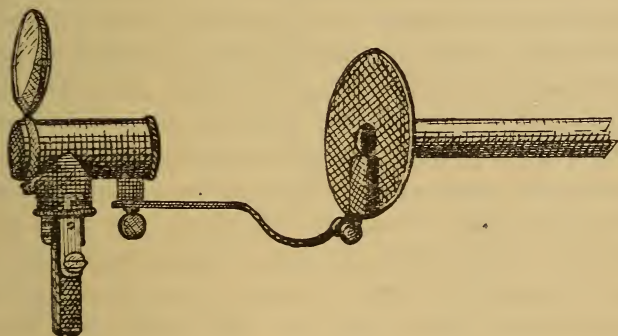
THE TREATMENT OF CHRONIC GONORRHEA, (CONTINUED.)

FOLLICULITIS.

Where follicles are known to be the direct cause of continued trouble no time should be lost in ascertaining their location and accomplishing their destruction. The urine must be entirely clear (shreds, prostatic plugs and flocculent specs excepted) so that a normal field may be seen and the offending follicles found, these being usually located on the roof of the canal, about midway between the meatus and the compressor. (See electric lamp, tubes.) The optical attachment was made from the prescription furnished by Dr. J. J. Finerty and consists of a prism having a magnifying lens attached to the anterior surface. For the carrying of cotton as a swab, and also the silver solution, nothing acts so well as pieces of wood the size or thickness of a match and about eight inches in length, the one to be used as the silver carrier to be slightly pointed so as to enter the follicle. (These are to be destroyed after using.) As the mucous membrane passes under the end of the tube occasionally a small fold may be mistaken for a follicle, but this can be quickly recognized if a small probe (steel) is used. In the case of the former the probe will simply slip through

this fold, whereas if a follicle is present the probe will enter it. Diseased follicles are generally easily recognized by their swollen, dark appearance in contradistinction to the surrounding normal membrane, which is usually of a pinkish hue. Follicles should be destroyed by a 20 per cent. silver solution, and if the trouble is due to this cause, *per se*, and they are all found, usually no further treatment is necessary. Many electric con-

FIG. 3.



Otis Electric Lamp, with author's optical attachment.

trivances are in the field for this work, but from quite an extended experience with various different devices the Otis lamp, with the author's attachment, can be advised and recommended as one of the most valuable for this work. The largest tube should be used which will enter the meatus, and when this may be smaller than

26 F. it is well to divide it to that number, or even 30 F. It should be remembered that although this is a very valuable instrument in its place its promiscuous use cannot be sanctioned for the reason that it may be the very cause for continuing irritation, thus aggravating the trouble. (See interference as a cause.)

IDIOSYNCRASY.

It is well that few individuals are peculiarly susceptible to catarrhal conditions of the urinary tract, for when such is the case the most careful and scientific care and advice seems to be of little or no value. In facial appearance they resemble the Madonna type, well built, large frame, muscles apparently well developed, features normal, the only seemingly defect being in the appearance of the skin. If closely scrutinized, one is struck with the peculiar white fineness, looking much like the anemic condition seen in young, fine-textured girls, (chlorosis, etc.,) excepting there is a want of that haggard, emaciated condition at times seen in some of the latter. In other words, there is a masculine appearance with the dermal texture of the female. These patients must not be confounded with those possessing, apparently, the same appearance as regards fineness of skin, for if carefully observed it is very evident from the careworn, sunken eyes and general look of despair that they are suffering from some constitutional derangement

which is lowering the vitality, a pronounced anemia (See want of tone in the tissues.) Medicines seem to have little or no effect in these conditions, there seeming to be no direct cause which needs attention. Undoubtedly the very best advice would be a change of climate with all that goes with it, but as we find few who can do this our aim should be from the start (acute infection) to prevent the development of that condition which is so prone to follow long continued suppuration, viz., want of tone in the tissue. The urine must receive the most careful attention, correcting any systemic defect discovered, such as lithemia, nephritis, nervous exhaustion, etc. The blood vessels should be kept under a constant state of contraction, at the same time fuel food being supplied to the system to take the place of tissue waste. The following has been found to be most serviceable from the moment of acute infection and must be continued for at least six or eight weeks, if necessary:

R ^x Tr. nux vomica,	oz.	1
Zinc phosphide,	gr.	1
Ol. morrhue emulsion,	ad. ozs.	16

Sig. One tablespoonful t i d.

In connection the diet must be the most nutritious avoiding only articles that are known to be detrimental to inflammation involving the genito-urinary tract. Office injections seem to be followed by two results: one a diminution in the amount of discharge, with a clearing

of the urine, which in forty-eight hours after treatment is stopped relapses into its former condition (marked opacity and discharge), and secondly, no matter what local medication or in what strength it is used, no benefit is apparent. Irritation must be avoided and unless there are positive evidences of a stricture due to former infection, (see page 45) instruments should never be allowed to enter the canal. From the author's experience with these cases the best results have been obtained by the continuous use of injections (such as zinc, etc., see page 92) by the patient himself. These injections must not be too strong (never over grs. 3 to the ounce) and should be used twice daily, or better still three times, for at least ten days after all discharge has stopped and the urine is fairly clear. Where injections have been continued as above, for say at least two months, and yet a small amount of thin, watery discharge can be brought forward to the meatus and the urine passed in two glasses shows a slight turbidity in both, with the utmost care office injections may be given. (See treatment of thickened membrane, chronic inflammatory areas, page 103.) As the urine becomes clear, even though there may yet be a perceptible moisture at the meatus, sounds may be tried to aid in promoting absorption. Although it may not be necessary to continue the use of cod liver oil until entire recovery, nevertheless it should be taken for at least a month, after which a tonic of iron, arsenic and strychnine may be substituted and continued some time.

WANT OF TONE IN THE TISSUES.

(See treatment of anemia, constitutional cachexia and idiosyncrasy.)

Where a cause is discoverable this must be removed as far as possible. Avoiding exhaustion, outdoor exercise should be insisted upon, but late hours, loss of sleep, and undigestible food must be dispensed with. When there is evidence that gastro-intestinal secretion is dormant, food seeming not to be properly digested, appropriate drugs should be given at the same time acting upon the patient's general condition by tonics, etc. (See Rx, page 113.) With the exception as noted (erythroxy-lon, page 113) such a prescription must be continued for some little time, or until the patient is in a good physical condition.

DIET AND GENERAL INSTRUCTIONS.

In contradistinction to the treatment of acute specific urethritis, but little curtailment of diet or mode of daily life is necessary in chronic urethritis, excepting conditions as in *lithemia* or *peculiar nervous conditions*. Although it is not supposed that a constant diet of shell fish, asparagus and tomatoes would be allowed, yet unless *there is a tendency towards lithemia, any of these may be taken in moderation*. Tobacco is not contraindicated excepting in those conditions where through its use the nervous system is excited or injured. *COITUS AND LIQUOR must never be allowed until resolution is complete.*

SUMMARY.

1. Chronic specific urethritis should be considered infectious until there is no discharge and the morning urine shows that the membrane is in a healthy condition. (It is assumed that there has been no vesicular or prostatic involvement.)

2. The posterior urethra is involved in every case and must receive attention before a cure can be hoped for.

3. Irritation is the one and great cause of continued trouble. This may be due to instrumentation or harsh treatment, let it be internally by drugs, etc., or externally by the use of bougies, sounds, endoscope, irrigations or deep injections.

4. Never use an instrument in the urethra until the urine is clear, excepting possibly of shreds.

5. The endoscope is rarely called for and should not be used unless positively indicated.

6. Every case is a law unto itself and where continued local measures have failed it will often be found that had COD LIVER OIL OR OTHER TONICS been given a cure would have been obtained sooner.

7. Shreds are evidence of localized inflammation which must be removed, otherwise sooner or later cicatricial tissue will form and result in stricture formation.

8. Always precede urethral instrumentation by an antiseptic and follow with an astringent.

9. In searching for stricture nothing but a bulbous instrument should be used; this must pass the compressor muscle, such being evidenced by the patient having the sensation of urination.

10. The finding of a bloody string following dilation of the urethra is a positive sign that stricture, or new tissue formation, is present and has been dilated. Its continued absence indicates that a normal calibre has been reached and no pathological narrowing is present.

11. With few exceptions (tuberculosis, cancer, etc.) all cases of urethral inflammation are curable.

12. As symptoms are very deceiving every case should be examined from the meatus to the secreting portion of the kidney, the testicles included.

13. The fact must not be forgotten that astringents act only on blood vessels in a relaxed condition, therefore no improvement should be looked for until every part of the membrane is in a chronic state of inflammation such being brought about by the avoidance of any irritation, either internal or external, and the lapse of time.

THE FOLLOWING WILL HOLD GOOD IN EVERY CASE:

THE OLDER THE CONDITION, THE QUICKER THE CURE.

CHAPTER XIX.

APPARATUS NECESSARY FOR THE DIAG- NOSIS AND TREATMENT OF PATH- OLOGICAL CONDITIONS OF THE URINARY TRACT.

- 6 Test tubes.
- 1 Wash bottle.
- 3 Wine glasses (capacity 6 to 8 drachms.)
- 1 Urinometer, (Squibbs.)
- 1 Ureaometer, (Doremus.)
Litmus paper, blue and red.
- 2 Funnels, glass.
- 1 Graduate, 4 oz.
- 3 Watch glasses.
Several droppers.
- 1 Pipette graduated to 10 c.c.
- 1 Pipette ungraduated.
- 2 Glass rods.
- 1 Alcohol lamp.
Cocaine, 4% solution.
Filter paper.
- 1 Albuminometer.

MICROSCOPICAL.

Microscopical stand with eye pieces, (Spencer.)
1-6th 2-3rd dry, and 1-12th oil immersion objectives.
Abbe condenser, hemacytometer, (Thoma-Ziess.)
Slides, cover glasses, Japanese paper, Canada balsam,
cedar oil, platinum hook, pinch forceps.
Centrifugal machine with attachment for urine and blood.
Methylene blue, (Löffler's solution) for gonococci.
Carbol Fuchsin solution, for tubercle bac.
Gentian violet solution.
Nitric acid 25% solution.
Alcohol 95% solution.
Stains for Gram's method.

CHEMICAL.

Nitric acid c. p., nitric acid commercial, acetic acid c. p.,
acetic acid 50% solution.
Tyson's alkaline solution.
Fehling's solution.
Haines's solution, for sugar.
Whitney's reagent, for sugar.
Sat. sol. Sodium chloride.
Distilled water.
Sodium hydrate solution, for urea.
Bromine, for urea.

URETHRAL DIAGNOSIS AND TREATMENT.

- Ultzmann's syringe with author's attachment (page 80.)
Zinc-alum solution, Silver nitrate solution 20% as a base.
Formaldehyde.
Steel sounds up to 32 F.
Filiforms, one dozen.
Tunnelled sounds up to 20 F.
Bougie a boule up to 30 F.
Meatotomy knife.
Deep urethral catheter with syringe, capacity 2 drs.
Circumcision forceps (Fisher.)
Prostatic douche (Guiteras.)
Electric lamp (Otis-Dowd.)
Wooden rods (See page 122.)
Endoscopic tubes 20, 24, 30, F. (Klotz.)
Endoscopic tube 30 F. (Lydston.)
Author's spray catheter.
Urethrotome (Otis.)
Retractors.
Perineal tube
Knives, several different shaped blades.
Speculum urethral.
Lithotomy staff.
Kelly pad.

Grooved directors.

Formic-glycero. (formaldehyde 1, glycerine 1000 parts.)

Hypodermic syringe.

Aspirator with several needles.

Trochars.

Needles, holder, silk and catgut.

Artery forceps, one dozen.

Vulselm forceps.

Scissors, curved and straight.

Curettes.

SOLUTIONS FOR URINARY ANALYSIS AND THE STAINING
OF BACTERIA.

Tyson's alkaline solution.

Magnesium sulfate,

Aq. ammonia,

Ammonium chloride, aa 1 part

Water, 8 parts.

Fehling's solution.

a. Cupric sulfate, 34.636 grms.

Distilled water, ad 1000 c.c.

b. Sodii-pot.tart. 173 grms.

Sodium hydrate, (sp. g. 1.120) 500 grms.

Distilled water. ad 1000 c.c

To be kept in separate bottles. When testing for sugar

use equal parts of each. (See special works for the detection of glucose

Haines's solution, for sugar :

Copper sulphate, gr. 30

Water, dist. oz. 1-2

Make a perfect solution and add

Glycerine, oz. 1-2

Again mix and then add

Liquor potassia, ozs. 5

Use 1 drachm of solution, boil and add 7 or 8 drops of suspected urine ; again boil and if sugar is present there will be a yellowish red precipitate found, which soon falls to the bottom of the tube.*

Doremus' solution :

Sodium hydrate, ozs. 6

Water, pints 1

Keep in well corked bottle in a dark place.

Loeffler's Methylene blue, solution for gonococci :

Saturate alcoholic sol. Methylene blue 30 c. c.

Caustic potash sol. 1-10000 100 c. c.

Use full strength.

* The writer has found that when there is but little sugar present, often as much as 30 drops of urine is necessary for its detection.

Carbol Fuchsin solution, for tubercle bacilli:

Fuchsin,	grms	1
Alcohol,	c. c.	10
Distilled water,	c. c.	100
Carbolic acid cryst.	grms	5

Make a perfect solution.

Gram's stains.

Ehrlich's anilin water-gentian-violet solution.

100 c. c. anilin-water (5 c. c. anilin oil to 100 c. c. of water) after being filtered to 11 c c, alcoholic solution. of gentian violet.

Gram's solution of iodine, (iodine, 1 part, pot. iod. 2 parts, water 250 parts.)

Method of using Gram's stain :

Prepare slide in usual way, and after fixing cover the same with Ehrlich's aniline gentian violet solution (use no heat.) Staining takes place at once. Remove stain by washing and cover specimen with Gram's iodine solution for half a minute or so. Now wash in alcohol until no more color comes away and then in water (filtered) several times. Counter stain with Bismarck brown, remove the excess with water and mount. Gonococci are stained brown where other diplococci are stained blue.

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